



Information is power. On the battlefield, information is deadly power. The Army approach to information warfare emphasizes both offense and defense. The Army of tomorrow will deny information to the enemy through secure communications and direct attack against enemy Command, Control, Communications, Computers and Intelligence (C4I) assets. The Army in conjunction with the other services will also expand its own C4I assets. This will give all U.S. forces a complete picture of the battlefield and securely transmit that picture to all units. As part of this effort, the Army is building the Army Battle Command System (ABCS), a seamless, secure and adaptable information architecture that will link battle commanders at all echelons. Most of the systems listed in this section are components of ABCS. Winning the Information War is about gathering as much information as possible on the enemy (e.g. numbers and types of vehicles, units and command centers) and on your own forces and then moving that information to the soldiers that can act on it, be they a transportation company or an armored battalion.

In order to build that complete picture of the theater, the Army must acquire a new range of information systems. The first elements to acquire are the intelligence and sensor systems that will gather all the information about the enemy and about friendly forces as well. The Guardrail/Common Sensor (GR/CS), the Ground Based Common Sensor (GBCS), the Tactical Unmanned Aerial Vehicle (UAV), and Trackwolf are a few of the systems that will gather the information. Other platforms like the Comanche helicopter will figure prominently in intelligence gathering through an armed reconnaissance role. A subset of this category includes the systems that highlight information about friendly forces. As an example, the NAVSTAR Global Positioning System (GPS) receivers provide precise location data to soldiers for targeting and navigation.

The second element of a new information architecture are the communications systems needed to move data securely and rapidly from point to point. In this category are systems like the Single Channel Ground Air Radio System (SINCGARS), Digital Transmission Assemblages, Circuit Switches/Message Switches, Mobile Subscriber Equipment (MSE) and Satellite Communications (SATCOM). These systems create a powerful network that will permit the movement of large amounts of data from any source to any soldier.

The final element is the computer hardware and software that will process the raw data into usable products. The systems in the first two categories will greatly increase the amount of information available to every soldier in the field. New computer systems are needed to manage the increased flow of information. Common Hardware and Software (CHS) and the Standard Army Management Information System (STAMIS) will ensure that the Army Information architecture remains compatible and interchangeable. Advanced software systems, like the Army Data Distribution System (ADDS), the Advanced Field Artillery Tactical Data System (AFATDS) and the All Source Analysis System (ASAS) will provide the means for analyzing and using the data. These are the systems that the soldiers will use to determine their next priority per the commander's intent.

The entire package of systems will create an Army that will be able to gain Information Dominance over any enemy. Tomorrow's Army will have unprecedented awareness of its own situation and needs and be able to acquire much more information about the enemy in terms of strength, location and intent. Commanders will be able to move resources (be they supplies or combat units) to where they can have the greatest impact on the battle. The Army seeks to provide its commanders and soldiers with total situational awareness, such that they will dominate the battlefield.



SCIENCE AND TECHNOLOGY

CONCEPT

DEM/VAL

EMD

PRODUCTION AND DEPLOYMENT

OPERATIONS AND SUPPORT

Battlespace Command and Control ATD

Digital Battlefield Communications ATD

Owning the Weather

Rapid Battlefield Visualization ACTD

Tactical Unmanned Aerial Vehicle (TUAV)

Tactical Unmanned Vehicle (TUV)

Comanche

Advanced Field Artillery Tactical Data System (AFATDS)

Advanced Quick Fix (AQF)

All Source Analysis System (ASAS)

Army Global Command and Control System (AGCCS)

Forward Area Air Defense Command and Control (FAADC²)

Ground-Based Common Sensor (GBCS)

Integrated System Control (ISYSCON)

Joint Surveillance Target Attack Radar System Ground Station Module (JSTARS GSSM)

Maneuver Control System (MCS)

Milstar (Army)

Air Defense Artillery Tactical Operation Centers (ADA TOCs)

Airborne Reconnaissance Low (ARL)

Army Data Distribution System (ADDS)

Common Hardware/Software (CHS)

Enhanced Trackwolf (ET)

Guardrail/Common Sensor (GRCS)

Integrated Meteorological System (IMETS)

Joint Tactical Terminal (JTT)

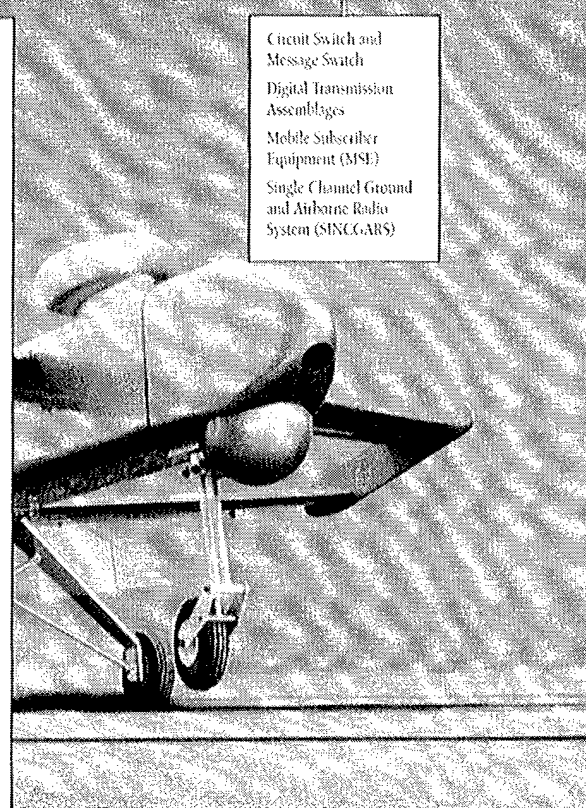
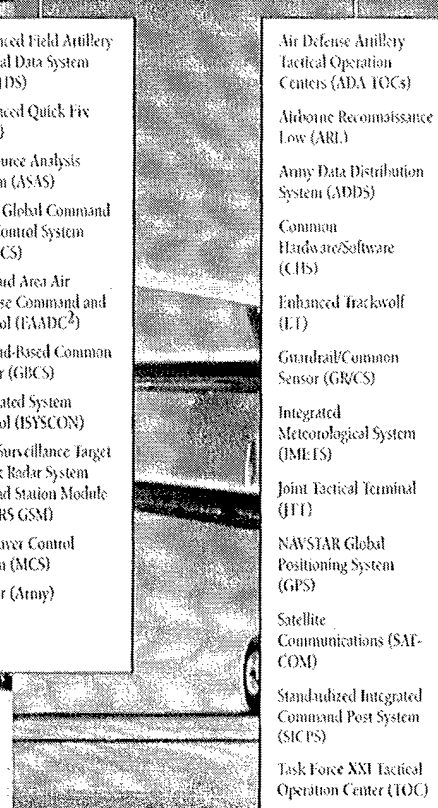
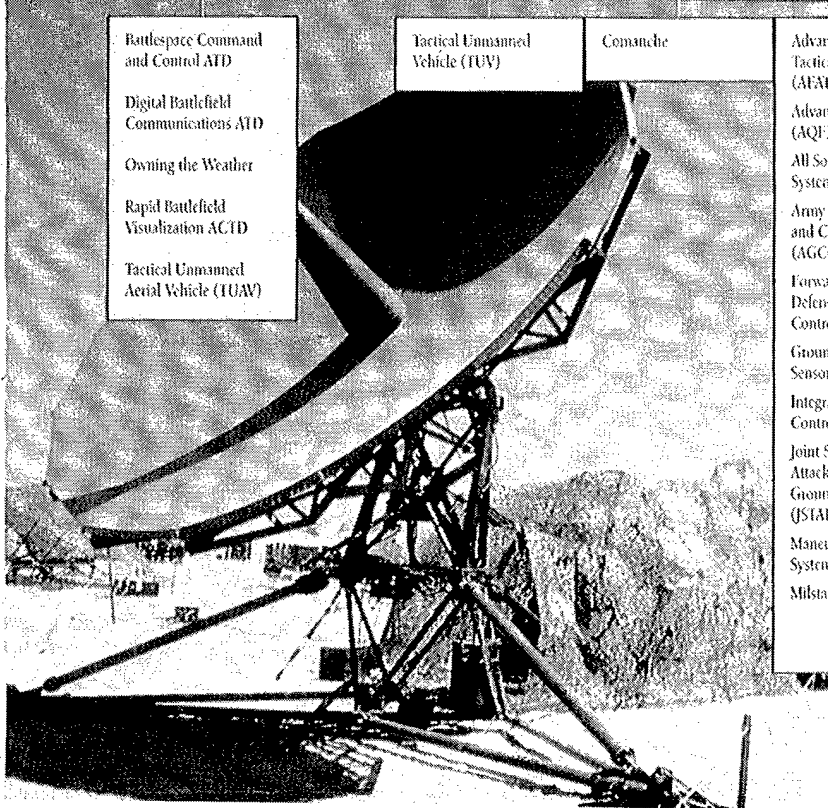
NAVSTAR Global Positioning System (GPS)

Satellite Communications (SATCOM)

Standardized Integrated Command Post System (SICPS)

Task Force XXI Tactical Operation Center (TOC)

Circuit Switch and Message Switch
Digital Transmission Assemblages
Mobile Subscriber Equipment (MSE)
Single Channel Ground and Airborne Radio System (SINCGARS)





Win the Information War

Conduct Precision Strike

EMD

MISSION: The Advanced Field Artillery Tactical Data System (AFATDS) is the automated command and control system for the fire support of the future. It provides the maneuver commander the capability to plan for and execute the attack on the right target, at the right time with the right munitions, and the right weapons system. It provides the maximum utilization of the fire support assets available on an expanding battlefield. The AFATDS will provide the multiservice (Army and Marine Corps) automated Fire Support Command, Control and Communications portion of the Army Battle Command System (ABCS) and support the close, deep and rear battle fire support requirements of Army doctrine. Additionally, AFATDS will interface with Contingency Theater Automated Planning System (CTAPS) to pass air support requests to the Air Force and Navy.

CHARACTERISTICS: AFATDS will provide integrated, automated support for planning, coordinating and controlling all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopter, and offensive electronic warfare) and for executing counterfire, interdiction, and suppression of enemy targets for close and deep operations. AFATDS uses non-developmental, ruggedized, Common Hardware/Software used by the other ABCS Battlefield Functional Areas (BFAs). AFATDS uses the results of its target value analysis to establish target priorities and select the best weapon system from field artillery (cannons and rockets), mortars, naval gunfire, Air Force, Navy and Army attack helicopters and offensive electronic warfare. The AFATDS will receive the Air Tasking Order from CTAPS and automatically process it for use in fire support operations. It also coordinates target acquisition and sensor assets to provide targeting information and target damage assessment data. The software for AFATDS is being developed in incremental fieldable versions such that each version provides additional capability/functionality with AFATDS 00 (formerly Version 3) providing the objective system. AFATDS is designed to be fully interoperable with the other ABCS BFAs as well as with the Fire Support capabilities of the Marine Corps, Navy and Air Force. AFATDS assets will be utilized at Echelon Above Corps levels.

FOREIGN COUNTERPART: AFATDS is designed to interoperate with the fire support command and control systems of the United Kingdom (BATES), Germany (ADLER) and France (ATLAS). Norway is planning an upgrade to its ODIN Fire Support System to interoperate with the AFATDS, Bates, ADLER, and Atlas. An automated artillery tactical command and control system was previously fielded by the former Warsaw Pact, which provided digital linkage from battery to brigade or regiment level for fire planning, targeting, logistics, and terrain management calculations.

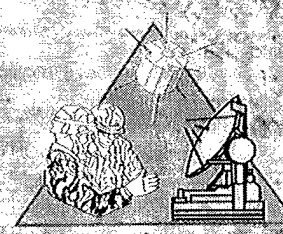
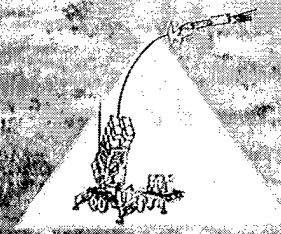
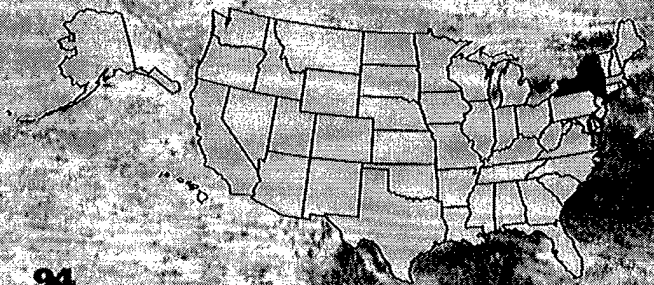
FOREIGN MILITARY SALES: Discussions are ongoing with Kuwait, Thailand, and the United Arab Emirates regarding their acquisition/purchase of AFATDS.

PROGRAM STATUS: Joint Warrior Interoperability Demonstration (JWID 96) with Air Force, Marine Corps, Navy, & NATO nations in August 1996. Began fielding AFATDS 96 in Sep 96 with First Cavalry Division as the First Unit Equipped (FUE). Conducted AFATDS 98 System Design Review, 1QFY97. Technical Test 2A of the interface to the BATES, ADLER, and ATLAS, 1QFY97.

PROJECTED ACTIVITIES: Continue development of AFATDS 97 and 98. Continue fielding of AFATDS 96 software. Conduct AFATDS 96 Initial Operational Capability. Conduct AFATDS 97 Test Readiness Review. Conduct Multi Service Operational Test.

PRIME CONTRACTOR: GTE, Taunton, MA-Hardware (CHS 2) Hughes Defense Communications, Fort Wayne, IN-Software
MILTOPE, Montgomery, AL-Hardware (CHS 1) SAIC Corp, San Diego, CA-Hardware (LCU)

*See appendix for list of subcontractors.



EMD

Advanced Quick Fix (AQF)

MISSION: The Advanced Quickfix (AQF) is a signal-intercept and precision emitter-location system that intercepts, identifies, and jams enemy C3I emitters. Leap-ahead technology exploits Communications Intelligence (COMINT) and Electronic Intelligence (ELINT) against enemy Low Probability of Intercept (LPI) and conventional signals.

CHARACTERISTICS: AQF, an intercept and emitter location system, interoperates with the Ground-Based Common Sensor-Light (GBCS-L) and Ground-Based Common Sensor-Heavy (GBCS-H) to provide Division commanders with the capability to intercept, precisely locate, and identify enemy conventional and Low Probability of Intercept (LPI) communications and noncommunications emitters and jam enemy conventional and LPI communications emitters. The AQF is an evolutionary, open architecture system which satisfies the Army's requirement to conduct tactical ground COMINT, ELINT, Electronic Support against enemy communications and radars and Electronic Attack against threat communications; and enhance the commander's ability to outmaneuver and destroy the enemy by locating or jamming threat command and control, fire control, and air defense centers. The AQF uses the EH-60L Blackhawk helicopter.

FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales. Sales to Taiwan of the older technology Quickfix systems are being discussed.

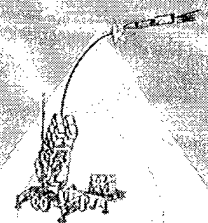
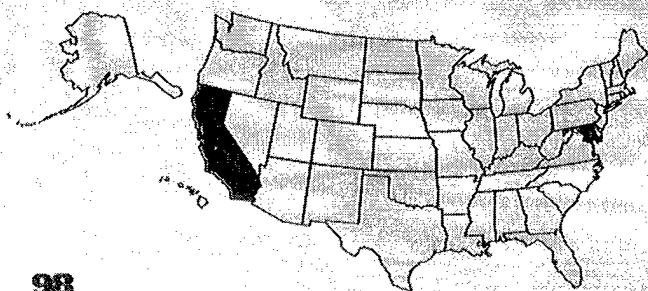
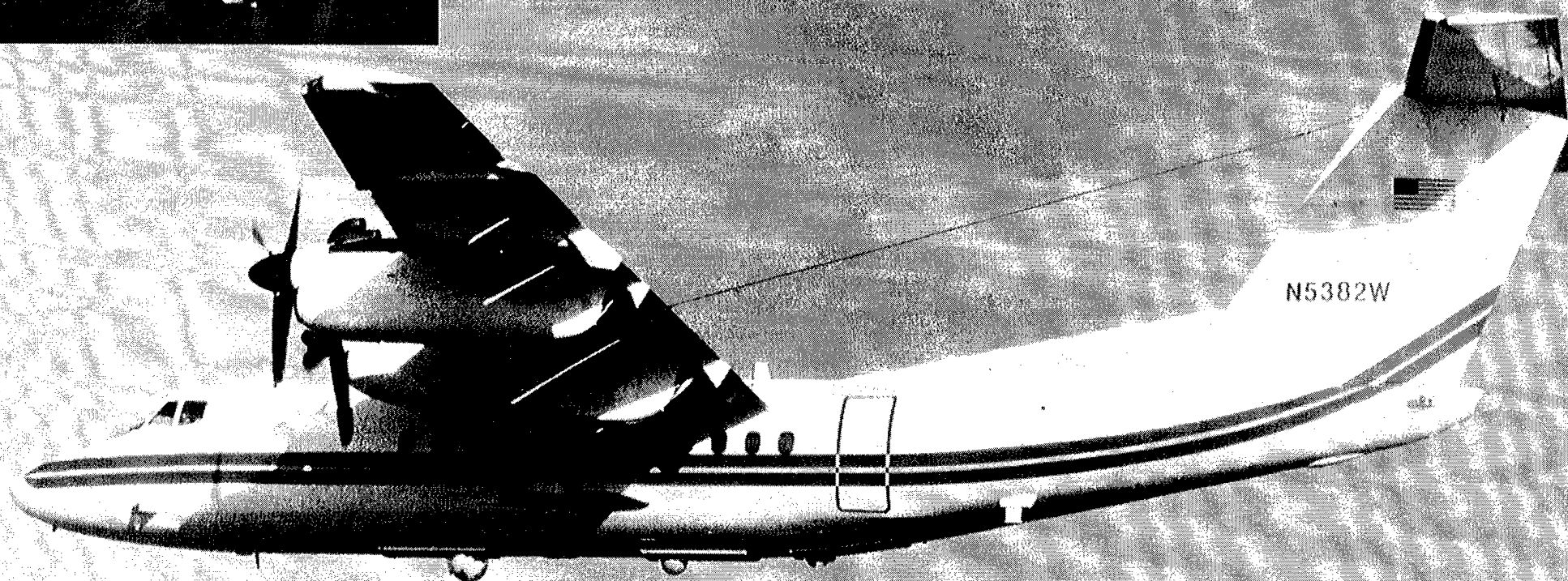
PROGRAM STATUS: AQF is in Low Rate Initial Production. An integrated Customer Test with the GBCS-L, GBCS-H and AQF was conducted in 4QFY95 in support of a Nov 95 Milestone IIIA decision for AQF Low Rate Initial Production.

PROJECTED ACTIVITIES: AQF will participate in the GBCS-L IOT&E in 4QFY97.

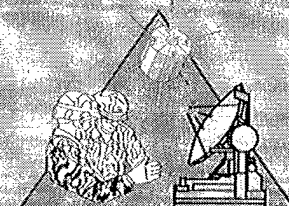
PRIME CONTRACTOR: Lockheed Martin (Owego, NY)

*See appendix for list of subcontractors.

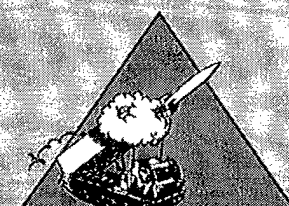




Protect the Force



Win the Information War



Conduct Precision Strike

PRODUCTION AND DEPLOYMENT

Airborne Reconnaissance Low (ARL)

MISSION: The Airborne Reconnaissance Low (ARL) is a multifunction, day/night, all-weather reconnaissance intelligence asset providing low profile, rapidly deployable, intelligence collection, exploitation and reporting.

CHARACTERISTICS: The ARL is a modified DeHavilland DHC-7 (RC-7B) fixed wing aircraft with a core Signal Intelligence (SIGINT) and imagery intelligence (IMINT) mission payload controlled and operated via onboard open architecture, multifunction workstations. The SIGINT subsystem has an HF/VHF/UHF intercept and direction-finding-capable Electronic Support Measures system. The IMINT subsystem is equipped with an infrared line scanner, forward looking infrared, and daylight imaging system. The ARL system has been developed to accommodate diverse mission requirements through the implementation of an open architecture, modular, reconfigurable mission sensor. The core set of sensors has been complemented with a Moving Target Indicator/Synthetic Aperture Radar and could also include low-light level TV, multi-spectral camera, acoustic range extension system, precision targeting subsystem, and remote configuration using a direct air-to-satellite datalink. Currently, there are three interim-capable ARL systems fielded to support U.S. SOUTHCOM requirements. These fielded systems are in two different configurations; two for performing SIGINT missions (ARL-C) and one for performing IMINT missions (ARL-I). Two additional ARL systems equipped with MTI/SAR were fielded in FY96 to support U.S. PACOM requirements in Korea.

FOREIGN COUNTERPART: Numerous countries possess airborne SIGINT and/or IMINT systems, but none provide the robust multi-intelligence capability of ARL.

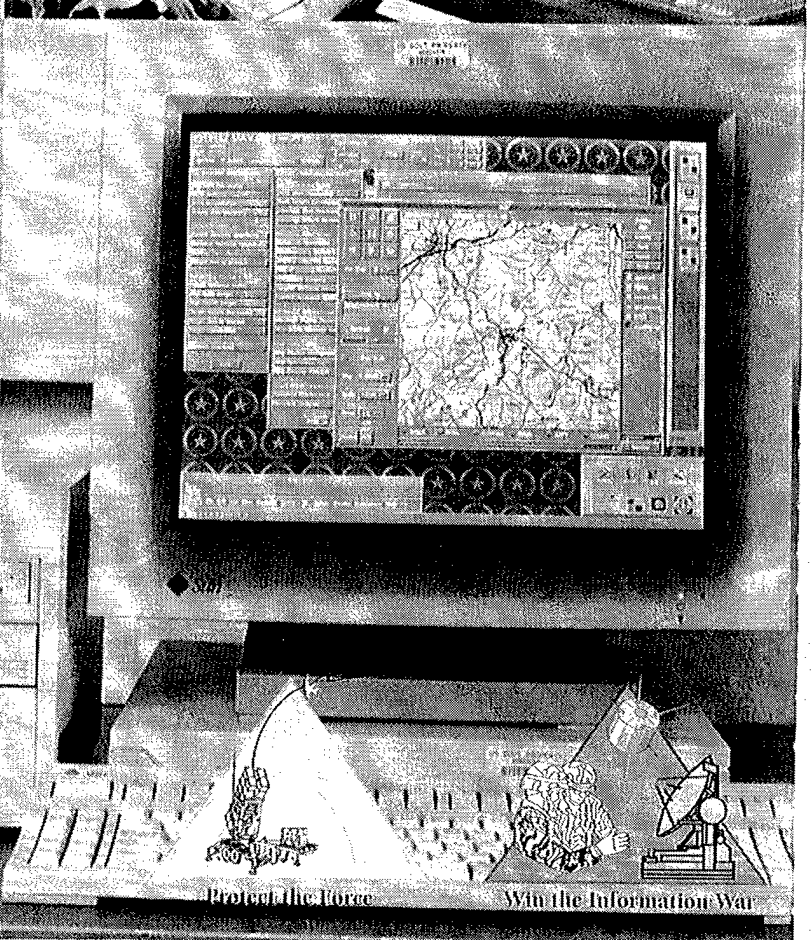
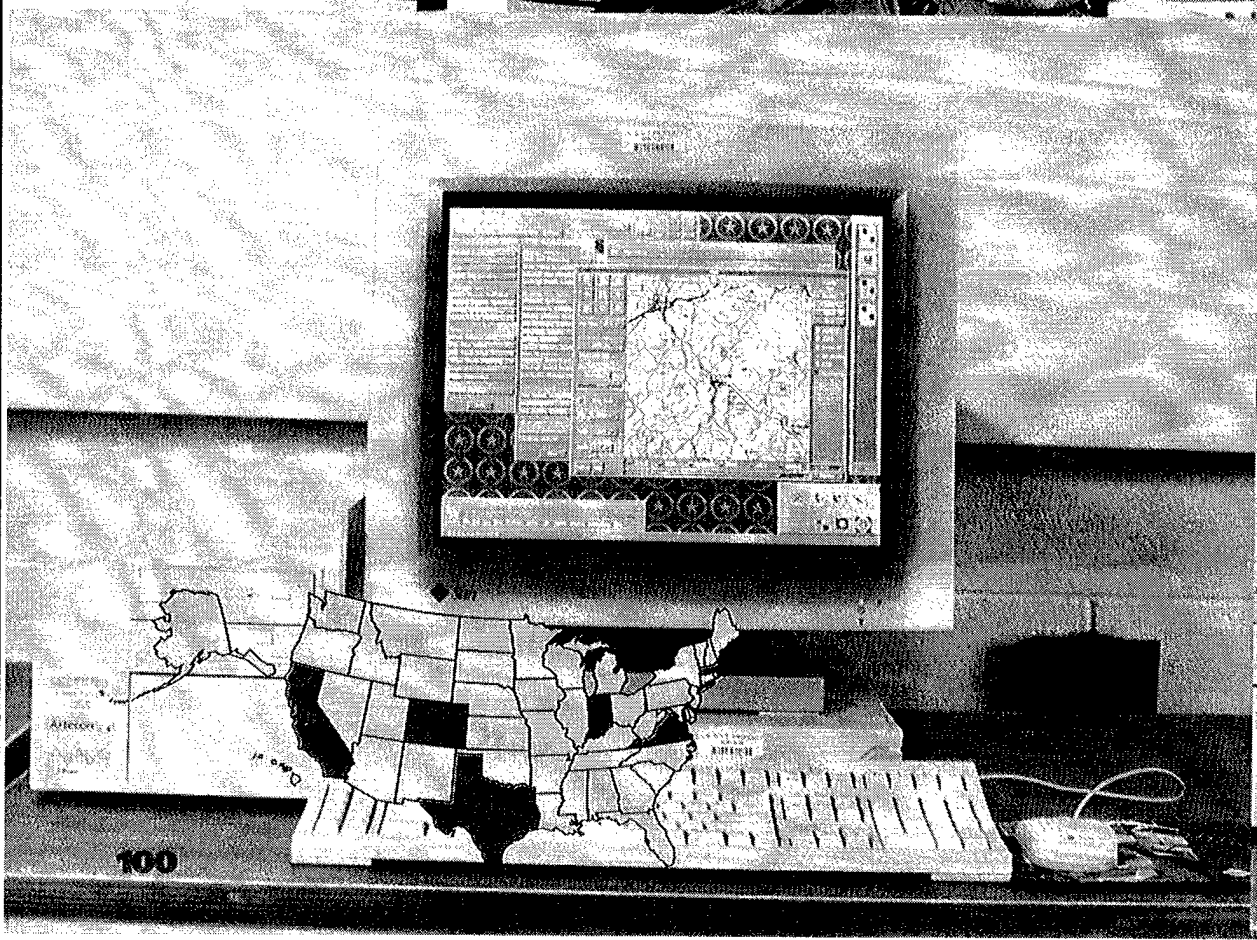
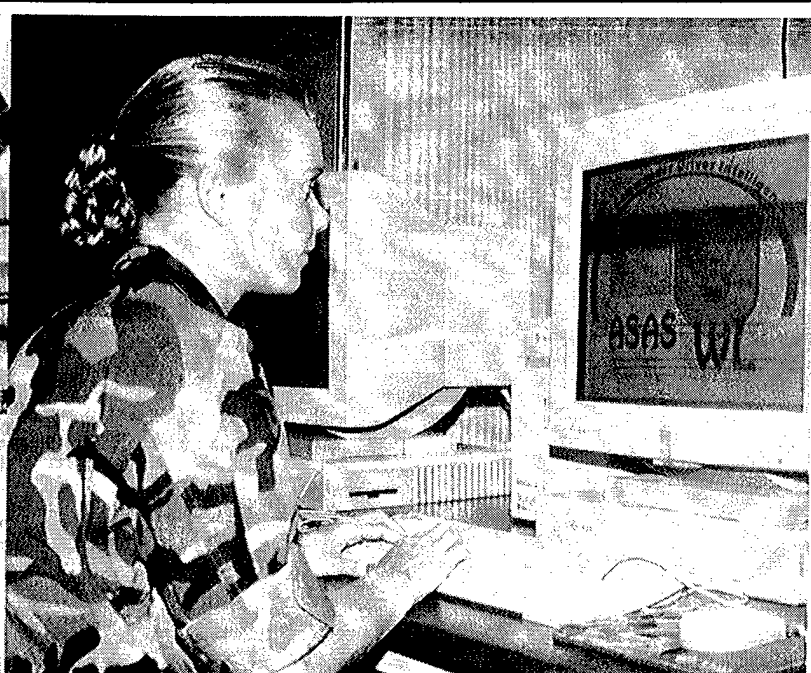
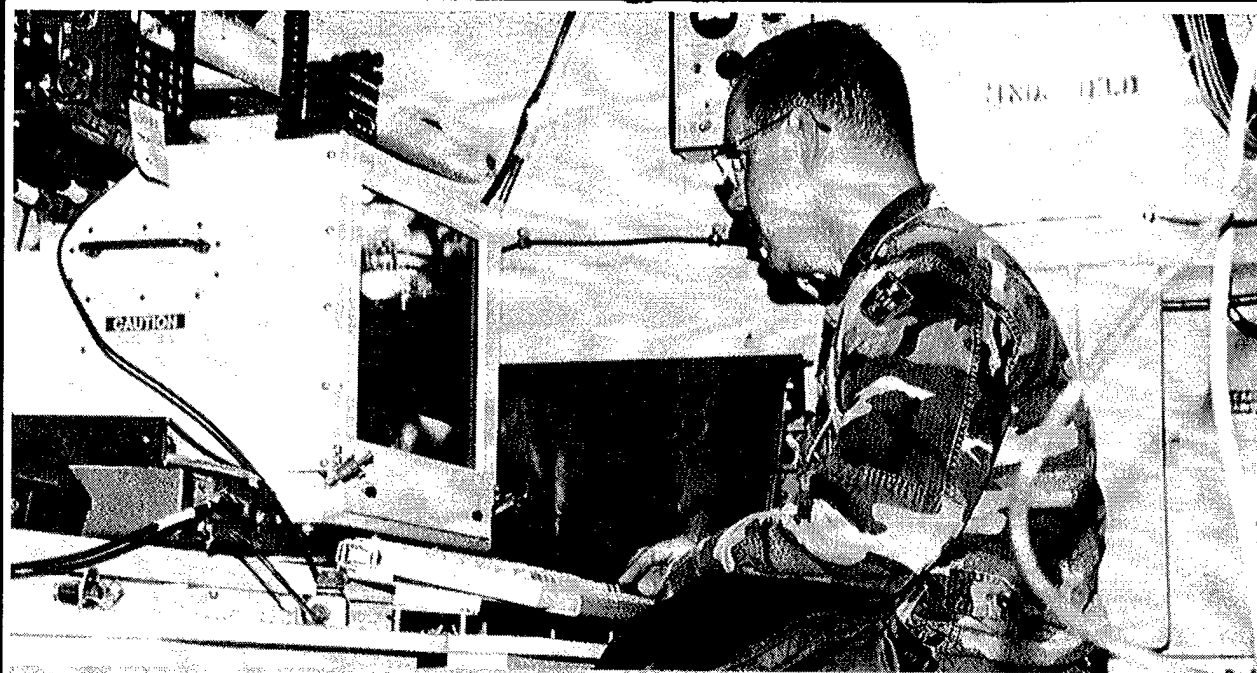
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: ARL is in MSIII Production and Deployment. ARL-M units #4 and #5 were fielded in September 1996. ARL-M unit #6 is scheduled to be fielded in September 1997. Retrofit of the ARL-I and ARL-C systems (units #1-3) is scheduled for FY97-98.

PROJECTED ACTIVITIES: Incorporate Joint Tactical Terminals (JTTs) into all six systems in FY98 to improve intelligence dissemination capabilities. Incorporate precision SIGINT targeting capabilities into all six systems in FY99. Upgrade all six systems with Joint SIGINT Avionics Family (JSAF) subsystems in FY00-02.

PRIME CONTRACTOR: California Microwave, Inc. (Belcamp, MD)

*See appendix for list of subcontractors.



EMD

All Source Analysis System (ASAS)

MISSION: The All Source Analysis System (ASAS) is the Intelligence Electronic Warfare (IEW) sub-element of the Army Battle Command System (ABCS). ASAS provides combat leaders the asset management capability and the all-source intelligence needed to visualize the battlespace and more effectively conduct the land battle.

CHARACTERISTICS: ASAS is a tactically deployable capability which receives and correlates data from strategic and tactical intelligence sensors and sources; produces ground battle situation analysis through threat integration; rapidly disseminates intelligence information; provides target nominations; helps manage organic IEW assets; and assists in providing operational security support. ASAS provides all source intelligence fusion, to give the warfighter timely and comprehensive understanding of enemy deployments, capabilities, and potential courses of action. ASAS is theater independent and operates during peacetime supporting contingency and crisis operations; stability and support operations; during low, mid and high intensity conflicts, and during restoration and return to peace time stabilization periods.

FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: All Source Analysis System (ASAS) is an ACAT 1 evolutionary acquisition project with five distinct blocks. Block I, which provided initial software functionality, was fielded to 11 units and the training base during the FY93-95 timeframe. ASAS-Extended, an NDI hardware variant of fielded ASAS using the Block I software, has been fielded to the remainder of the active force and will be fielded to the Reserve Component Enhanced Brigades during FY97 through FY99. ASAS Block II, a streamlined acquisition initiative, builds upon the success of Block I, upgrading capabilities, transitioning to the Defense Information Infrastructure (DII) Common Operating Environment (COE) and moves to an open architecture capable of running on common hardware. ASAS Block III will be principally a software enhancement and communications upgrade that provides the Army with the objective ASAS capability. The ASAS Block III development begins in FY99. Blocks IV and V will be developed under PDSS.

PROJECTED ACTIVITIES: Continue fielding ASAS - Extended to Reserve Components.
Continue ASAS Block II Engineering and Manufacturing Development (EMD) effort.
Provide Block II Capability Package-Remote Workstation (RWS) to Task Force XXI.
Complete testing of Block II Capability Package-Single Source upgrade.
Procure and field CHS-2 hardware as part of Block II Capability Package upgrades.
Provide units with sustainment training assistance.
Participate in JWID 97 and Task Force XXI.

PRIME CONTRACTOR: ASAS Block II: Lockheed Martin (Littleton, CO)

* See appendix for list of subcontractors.



MISSION: The Army Data Distribution System (ADDS) functions to provide a tactical data distribution radio system in support of the needs of the multitude of computers being fielded as part of the Army Tactical Command and Control System (ATCCS), which is transitioning to the Army Battle Command System (ABCS), and other battlefield automated systems to include those requirements associated with Force XXI programs.

CHARACTERISTICS: The ADDS consists of three major products: the Enhanced Position Location Reporting System (EPLRS) for medium-speed data distribution, the Joint Tactical Information Distribution System (JTIDS) for high-speed data distribution, and the Near-Term Digital Radio (NTDR) which is planned to replace EPLRS. The NTDR is a Non-Developmental Item R&D program that will meet Army data communication needs at Brigade and below. The program will create the Army communications data backbone from platoon to brigade for Task Force XXI. The ADDS uses Time Division Multiple Access communications architecture to avoid transmission contention. Frequency hopping, error detection and correction with interleaving, and spread spectrum technology provide jamming resistance. The EPLRS portion of ADDS provides data distribution and position/navigation services in near real time. EPLRS consists of a Network Control Station (NCS) and EPLRS User Units (EPUUs). Up to 460 EPUUs can be controlled by a single NCS. The EPUU is a radio that can be configured as a Manpack Unit, a Surface Vehicle Unit, and an Airborne Vehicle Unit. The JTIDS portion of the ADDS program is a joint program representing all services and allied force requirements with the purpose of acquiring a digital information system for tactical interoperability and awareness which complies with the ASD (C3I) policy establishing Link-16 as the DOD primary tactical data link for C2I. The primary use of the Class 2M terminals is to distribute air tracks to net Air Defense Control Centers, and to control air and missile defense weapon engagement operations. The Class 2M will be integrated into six Army platforms. The NTDR program will have an open system architecture and have five times the data throughput of EPLRS, and support both tactical Internet protocol (IP) host systems such as Applique as well as Battlefield Functional Area host systems.

FOREIGN COUNTERPART: EPLRS has no known foreign counterpart. JTIDS is a joint and multinational system that will be interoperable with NATO units.

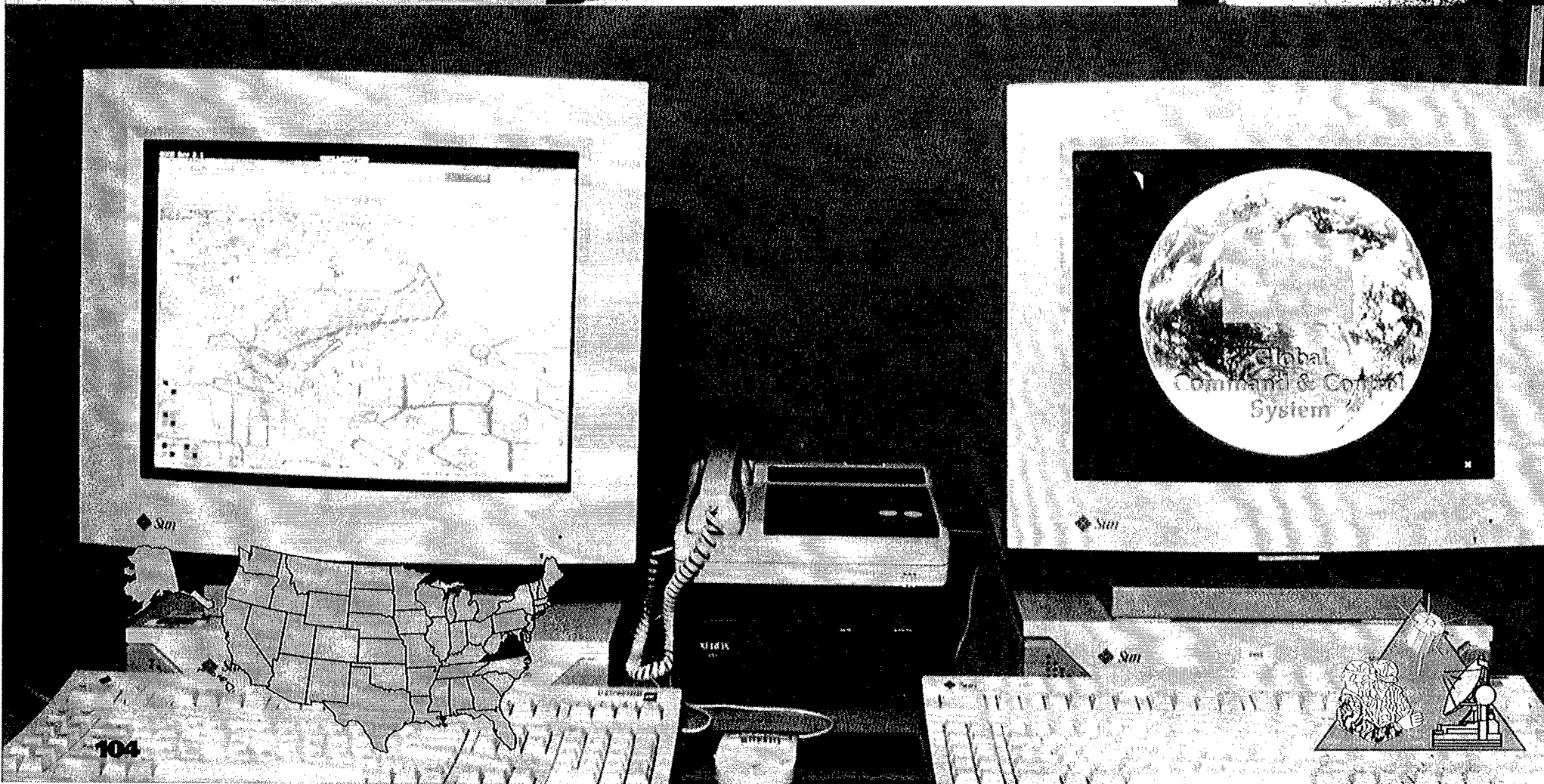
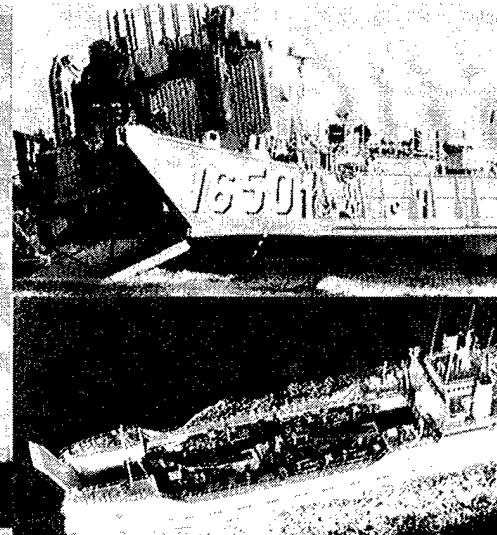
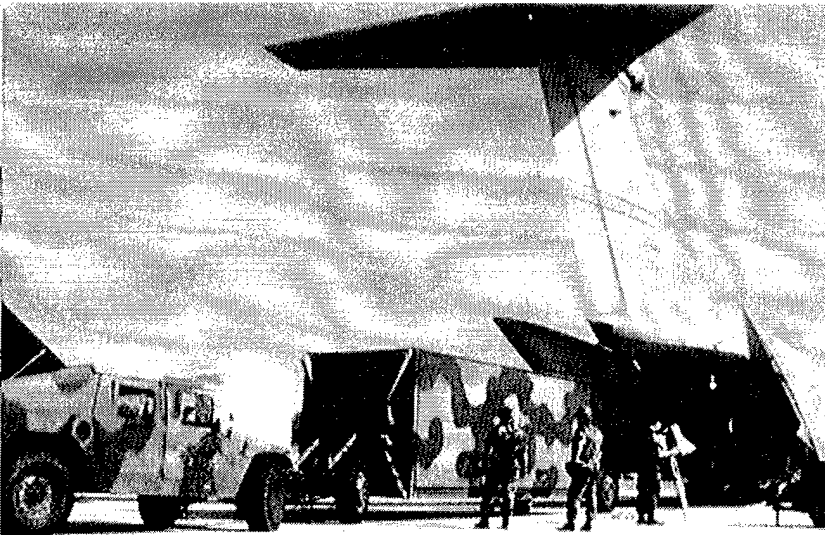
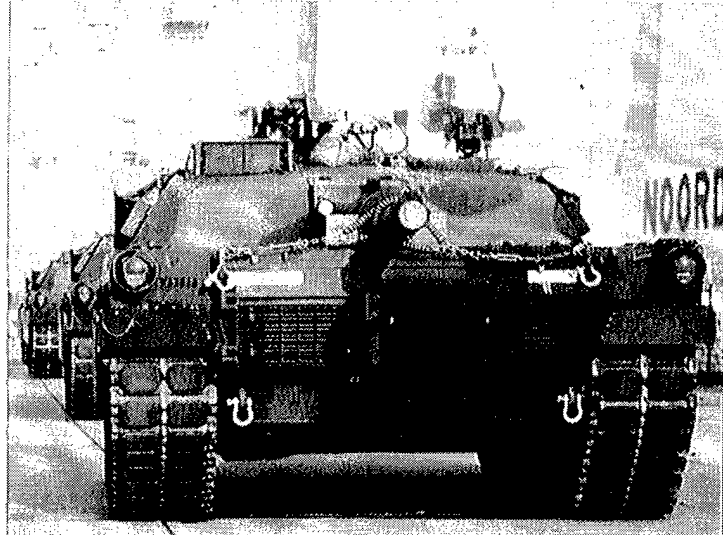
FOREIGN MILITARY SALES: JTIDS (2M) is currently being acquired by France and the Netherlands.

PROGRAM STATUS: A total of 1816 EPLRS were built during Low-Rate Initial Production (LRIP). The LRIP IOTE was completed in August 1994. Fielding commenced in January 1995. The JTIDS has completed engineering development and system technical testing for the Class 2M Terminal. The Development Tests on the Class 2M Terminals are being conducted from April through September 1996. Operational Test/Multi-Service Tests will be conducted from October through November 1997. JTIDS LRIP was awarded 26 March 1996. NTDR basic contract was awarded competitively on 19 Jan 96 for 200 NTDRs with an option for up to 950 units. Technology insertion efforts began in FY97.

PROJECTED ACTIVITIES: JTIDS Full Rate Production Decision is scheduled for March 1997. EPLRS Very High Speed Integrated (VHSIC) developed under EPLRS LRIP are scheduled for retrofit starting 2QFY98. VHSIC and on-going Engineering Change Proposal (ECP)/System Improvement Program (SIP) efforts will provide EPLRS with a three-fold increase in data rate. Full Rate Production Decision is scheduled for 2QFY97. NTDR Operational Assessment is scheduled for 3QFY98. Initial Production Award is anticipated 3QFY99.

PRIME CONTRACTOR: General Motors (Hughes Aircraft Company) (HAC) (El Segundo, CA and Forest, MS) HAC/Magnavox (Ft Wayne, IN) EPLRS, GEC Marconi (Totowa, NJ) JTIDS, ITT (Ft Wayne, IN) NTDR

* See appendix for list of subcontractors.



MISSION: As the Echelon Above Corps segment of the Army Battle Command System (ABCS), the Army Global Command and Control System (AGCCS) will provide functional applications and decision support software for Commanders and Staffs at Strategic Command Centers, Theater Army Headquarters, and Major Subordinate Commands.

CHARACTERISTICS: The AGCCS is the Army implementation of the Joint Staff sponsored Global Command and Control System (GCCS). The AGCCS will be interoperable with the GCCS and the tactical implementations of the ABCS such as the Army Tactical Command and Control System to provide significant improvement in information exchanges between all levels of joint and service operations.

The AGCCS is developed by reusing the "best of breed" functional C2 software currently resident in other Army systems, such as the Army WWMCCS Information System (AWIS) and the Standard Theater Army Command and Control System. Application code from these systems is integrated into the GCCS Common Operating Environment (COE). The COE incorporates standardized rigidly controlled non-developmental software modules as promoted by all military components and provides a full range of systems services for database functions, network operations, message handling, mapping, security controls and more. The system's hardware platform is based on the Common Hardware Software II (CHS II) contract. The system architecture links users via Local Area Networks (LANs) in Client/Server configurations with interface to the Secret Internet Protocol Router Network (SIPRNET) for worldwide communication.

FOREIGN COUNTERPART: No known foreign counterpart.

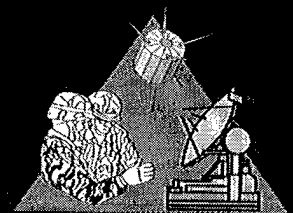
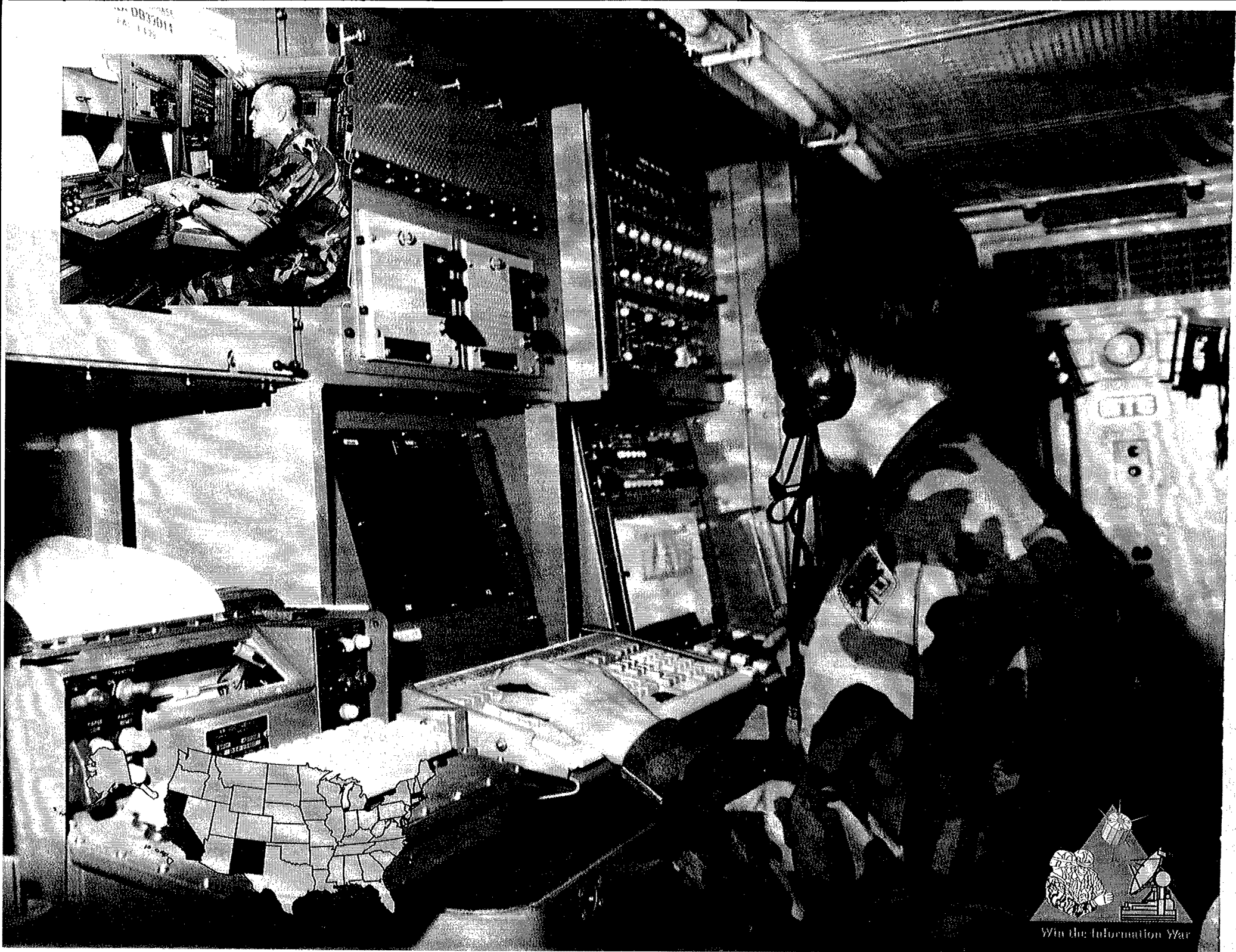
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: Award of the AGCCS systems integration and development contract, December 1994. The Initial Operating Capability (IOC) occurred in August 1996. Currently validating requirements for continuing C2 functional enhancement.

PROJECTED ACTIVITIES: Fielding of functional capabilities began in January 1996 and will continue in FY97.

PRIME CONTRACTOR: Lockheed Martin (Springfield, VA)

*See appendix for list of subcontractors.



Win the Information War

MISSION: The mission of Circuit Switch and Message Switch is to provide automatic switching service - interconnecting analog and digital users - between tactical and Defense Communication System switches and between U.S. and NATO national switches.

CHARACTERISTICS: The AN/TTC-39A/D system is the heart of the multichannel switched network and is a highly efficient means of connecting telephones, message traffic, and data users in both secure and nonsecure modes in the area network at Echelons Above Corps (EAC). The AN/TTC-39 system provides corps and theater echelons with tactical, automatic store, and forward-record traffic capability. The EAC extension system is based on Mobile Subscriber Equipment (MSE) identical switches: the AN/TTC-46 (LEN) and AN/TTC-48 (SEN). The AN/TTC-39 circuit switch family consists of three fielded versions. The "A" model switches are an S-280, 744-line analog/digital switch with integral COMSEC and a downsized, modified S-250, 324-line analog/digital switch. Both provide up to 7,500 calls-per-hour service, 5-level precedence, conference, and many other subscriber features. The "D" model is an S-280, 708-line analog/digital switch that incorporates the same affiliation and flood search routing as provided in MSE. A packet switch (PS) overlay provides a data transfer capability identical to that in MSE. Most "A" features are still available in the "D" model. The AN/TTC-39 message switch family consists of two fielded versions. All are in S-280 shelters. There are a dual-shelter, 50-line switch and single-shelter, 48-line switches. All are tactical, automatic store, and forward switches that provide service for both strategic (R) and intelligence (Y) communities. The switches provide interface with inventory, TRI-TAC, and Automatic Digital Network equipment with precedence, security, and other subscriber features. The Fly-Away Message Switch System (FMSS) is a portable 8-line Message Switch.

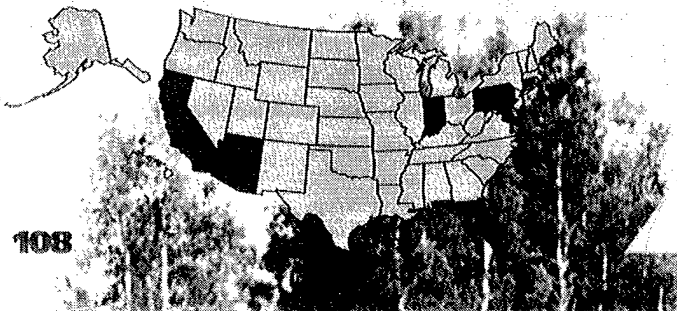
FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

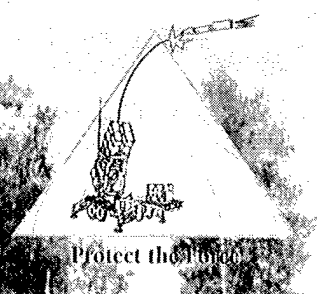
PROGRAM STATUS: The circuit and message switches are currently deployed and were initially authorized for production in FY80. Both switches are currently in product improvement phases. The circuit switch "A" model has been fully fielded to the Army, Air Force, and Joint communities. The "D" model with PS will complete fielding in FY96. A Circuit Switch Routing Improvement Program (CSRTEP) has been completed and tested and will provide for a common software baseline in most TTC-39 A/39D and MSE switches. Fielding of this upgrade is on-going. The fielding of the AN/TTC-39A is also ongoing. An award for the Fly-Away Message Switch occurred in March 1996.

PROJECTED ACTIVITIES: Approve ECP which will begin a Single Shelter Switch Program.
Continue Fielding of Routing Improvement Program (CSRTEP) to all Area Common User System (ACUS) switch users (except AN/TTC-39-A(V)1).
Incorporate Enhanced Switch Operation Program into ACUS switches.
Incorporate video and Asynchronous Transfer Mode capabilities into ACUS switches.
Transition AN/TTC-39A and AN/TTC-39 to CECOM.
Procure and Field Network Encryption System.

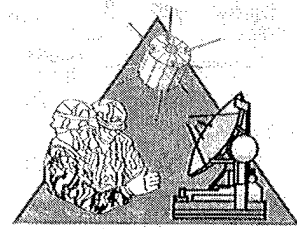
PRIME CONTRACTOR: California Microwave (Woodland Hills, CA) FMSS
GTE (Taunton, MA) except FMSS



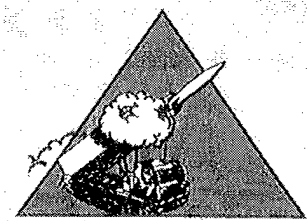
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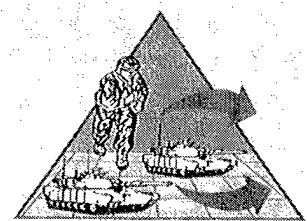
Protect the Homeland



Win the Information War



Conduct Precision Strike



Dominate the Maneuver Battle

MISSION: The Comanche will perform the armed reconnaissance mission for attack helicopter and air cavalry units.

CHARACTERISTICS: The Comanche (RAH-66) is the Army's next generation helicopter designed to perform the armed and light attack reconnaissance mission. The Comanche will significantly expand the Army's capability to conduct reconnaissance operations in all battlefield environments, adverse weather, and during the day or night. The Comanche will "protect the force" with its advanced electro-optical sensors, aided target recognition and sensor/weapons integration. Comanche's digital communications capacity will enhance the Army's capability to win the "battlefield information war" and allow interface with Joint Surveillance and Target Attack Radar System (JSTARS) and other joint sensors and weapons platforms. Comanche's design for rapid rearm, refuel and repair will provide increased operation tempo. Low observability, target recognition and digitized communications provide the capability to conduct deep "precision strike" missions against time sensitive targets. The Comanche will replace three types of helicopters (AH-1, OH-58, and OH-6) that currently perform the armed reconnaissance mission.

Crew: 2 pilots (single-pilot operable)

Speed: 175 kt (Dash)

Endurance: 2.5 hr (plus 20-minute reserve)

Armaments: 20 mm Turreted Gatling Gun, Air-to-ground and air-to-air missiles

Mission Equipment Package: Advanced electro-optical target acquisition and designation system, aided target recognition and helmet-mounted display. Each aircraft will have Longbow Millimeter Wave Radar capability and provisions for additional weapon stores.

FOREIGN COUNTERPART: French/German: Tigre

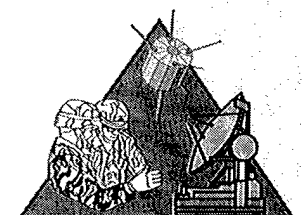
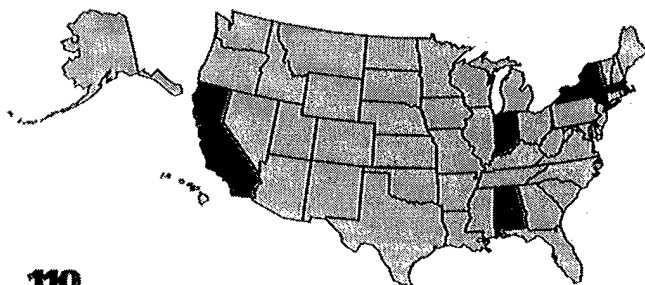
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: The program is currently in the development phase of the acquisition life-cycle, with two prototype aircraft being built and flight tested. The program also includes six Early Operational Capability (EOC) aircraft that will be evaluated in a field environment prior to initiation of low-rate initial production (LRIP). The first flight of prototype 1 occurred on 4 January, 1996.

PROJECTED ACTIVITIES: DAB MSII October 2001.
IOC July 2006.

PRIME CONTRACTOR: Allied Signal/Rolls-Royce (Allison Engines) Team (Indianapolis, IN)
Boeing and Sikorsky Team (Stratford, CT)

* See appendix for list of subcontractors.



PRODUCTION AND DEPLOYMENT

MISSION: The Common Hardware/Software (CHS) program equips the Army Battle Command Systems from Echelons Above Corps to foxhole with common computer hardware/software.

CHARACTERISTICS: CHS improves interoperability and lowers life-cycle costs by standardizing battlefield command and control (C2) automation through centralized buys of Non-Developmental Items, standardized protocols, and the development of reusable common software (CS). The program provides CHS to over 80 Army and DoD customers; three primary contracts are available with the following hardware—the CHS-1 Transportable Computer Unit (TCU)/Handheld Terminal Unit (HTU), CHS-2 High Capacity Computer Unit (HCU)/TCU/HTU, and the Lightweight Computer Unit (LCU). These contracts have commercial, rugged and highly rugged hardware versions and provide for commercial industry based logistics support that meets the unique requirements of the tactical military units.

| | CHS-1 (TCU) | CHS-2 (HTU) | CHS-2 (HCU(2)) | LCU |
|-------------------|---|-------------|----------------|---------------|
| Processor: | RISC | 80486DX2 | RISC | Pentium |
| MHz clock: | 125 | 50 | 50,61,75 | 90 |
| MIPS: | 147 | >10 | 123,164,205 | 14/20 |
| RAM: | 80-400 MB | 16 or 32 MB | 32-512 MB | 8-32/8-128 MB |
| CHS/LCU software: | UNIX-POSIX; RDBMS; GKS, PHIGS, PEX; DoD Protocols; GOSIP; E-MAIL; NIX, NFX, DCE; MPN/DDN X.25; ADA; DOS; PURGING SW; CASE TOOLS | | | |

A key component to the overall CHS program is CS. The CS program builds upon Army, Navy and Air Force software to produce common standard products for the Defense Information Infrastructure Common Operating Environment (DII COE) for use by all DoD services and agencies. The CS program provides Army products and input to the DII COE developments being managed by other DoD organizations and is also responsible for developing common C2 Army applications for use by many systems. These CS activities have resulted in improved interoperability, reduced development and maintenance costs and shortened development schedules through a robust systematic software reuse program.

FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

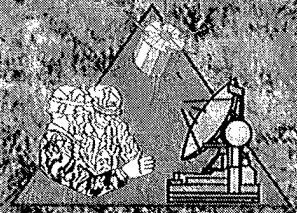
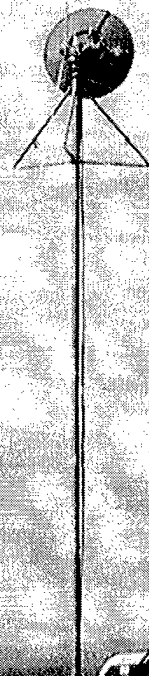
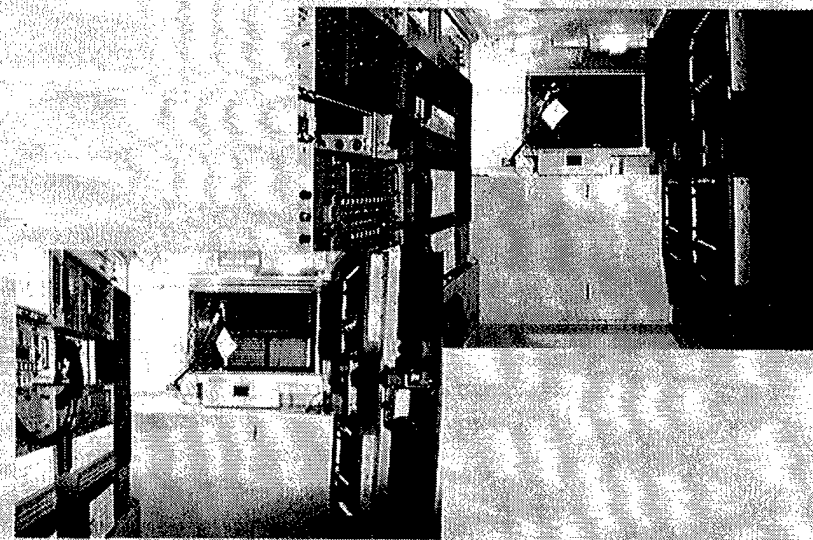
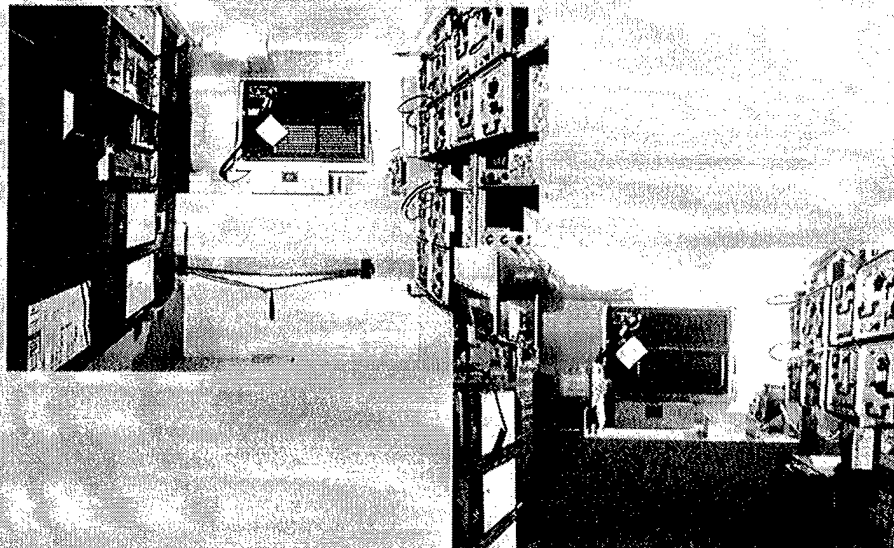
PROGRAM STATUS: The CHS-1 contract was extended to August 1997. CHS-2, which is a follow-on to the CHS-1 contract, was awarded to GTE April 10, 1995. CH-2 ruggedized HCU and TCU equipment began delivery February 1996, and First Article Testing was completed in Oct 1996.

PROJECTED ACTIVITIES:

- Complete the CHS-2 HTU First Article and Reliability Qualification Test.
- Continue execution of common HW/SW upgrades.
- Continue Technology Insertion.
- Development of DII COE products for DoD systems.
- Development of common Army C2 applications.

PRIME CONTRACTOR:

CHS-1: MILTOPE Inc. (Hope Hull, AL)
 CHS-2: GTE (Taunton, MA)
 LCU: SAIC (San Diego, CA)



www.informationwar.com

MISSION: Digital Transmission Assemblages represent a family of high-capacity, digital radio systems that link circuit and message switches into communications networks supporting telephone and message traffic at the theater-tactical level. They also provide the transmission path for linking extension switches at subscriber locations into the main switching network.

CHARACTERISTICS: The Digital Transmission Assemblages provide a series of radio relay and radio terminal equipment in a variety of sizes, capabilities, and characteristics. The following provides a listing of the available systems.

| | | | |
|--------------|------------|---------------------|-------------------------|
| AN/TRACE-173 | (fullsize) | Radio Terminal Set: | Single Shelter (S-280C) |
| AN/TRC-173A | (downsize) | Radio Terminal Set: | Single Shelter (S-749)* |
| AN/TRC-173B | (HMDA) | Radio Terminal Set: | Single Shelter (S-805G) |
| AN/TRACE-174 | (fullsize) | Radio Repeater Set: | Single Shelter (S-280C) |
| AN/TRC-174A | (downsize) | Radio Repeater Set: | Single Shelter (S-749)* |
| AN/TRC-174B | (HMDA) | Radio Repeater Set: | Single Shelter (S-805G) |
| AN/TRC-175 | (fullsize) | Radio Terminal Set: | Single Shelter (S-280C) |
| AN/TRC-175A | (downsize) | Radio Terminal Set: | Single Shelter (S-749)* |
| AN/TRC-175B | (HMDA) | Radio Terminal Set: | Single Shelter (S-805G) |
| AN/TRC-138A | (fullsize) | Radio Repeater Set: | Single Shelter (S-280C) |
| AN/TRC-138B | (downsize) | Radio Repeater Set: | Single Shelter (S-749)* |
| AN/TRC-138C | (HMDA) | Radio Repeater Set: | Single Shelter (S-805G) |

*S-749 is essentially an S-280C shelter reduced in length from 12 ft to 7 ft

FOREIGN COUNTERPART: No known foreign counterpart.

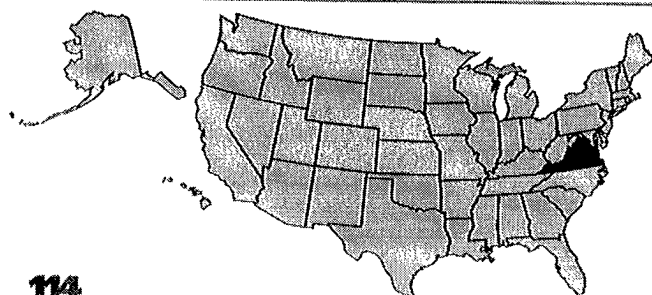
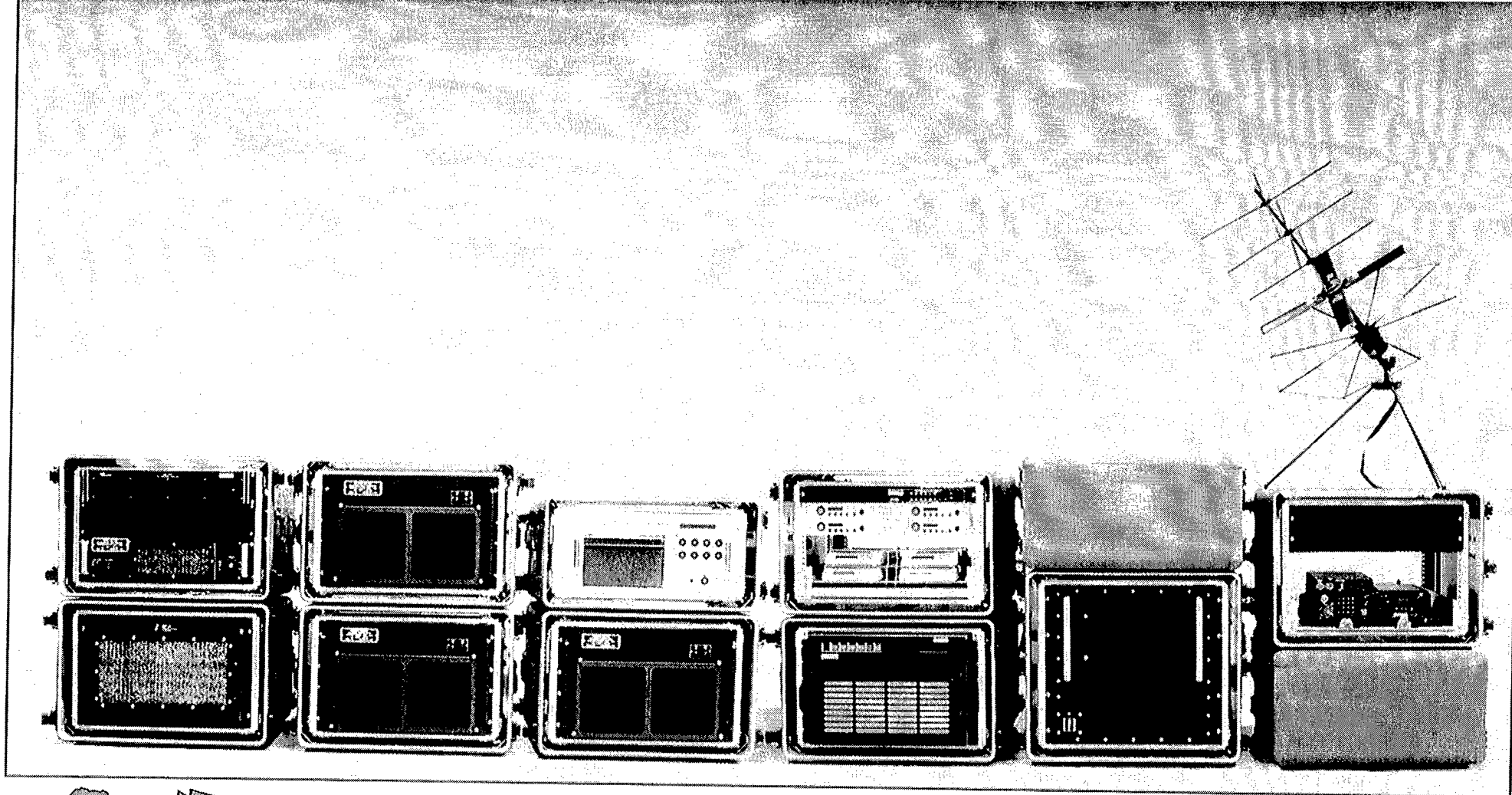
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: A new generation of assemblages is currently being produced by Laguna Industries. These are known as the High Mobility DGM Assemblage (HMDA) and are transported on two heavy HMMWVs. One vehicle transports the shelter while the second vehicle transports the AB-1373/TRC antenna masts. These systems will replace the active Army assemblages in EAC Signal units in FY98 and FY99. The First Article Test was completed and an Option Year I was awarded during 2QFY95. Production deliveries began 1QFY96.

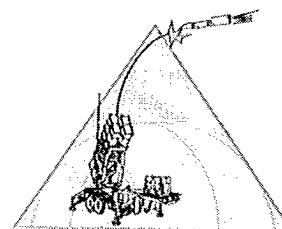
PROJECTED ACTIVITIES: HMDA retrofits begin in 1QFY98.

PRIME CONTRACTOR: Laguna Industries (Laguna Pueblo, NM)

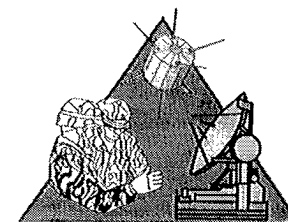
* See appendix for list of subcontractors.



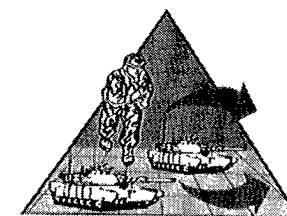
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PRODUCTION AND DEPLOYMENT

Enhanced Trackwolf (ET)

MISSION: The Enhanced Trackwolf (ET) system is an Echelon Above Corps, ground-based, man-transportable, transit cased, high frequency direction finding and intercept system.

CHARACTERISTICS: The Enhanced Trackwolf is an evolutionary step from the Trackwolf Program, with greater transportability, capability, and operational flexibility. The program was directed by Congress in FY93 as a result of DESERT SHIELD/DESERT STORM, during which the current Trackwolf system proved too large and cumbersome for rapid deployment. In addition to transportability advantages from the current Trackwolf system, ET will incorporate advanced capabilities that will allow intercept of modern modulations. The system consists of three stations, each with nine positions, each configured as 1 DF, 2 Management/Analysis, and 6 Collection functions. Set-up/tear-down times are less than four hours and each suite uses less than 4000 watts of power. The architecture is designed to be an integration of proven technologies, with extensive use of non-developmental hardware and software.

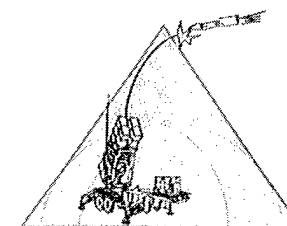
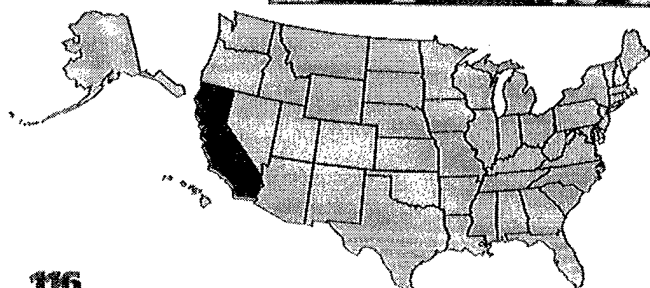
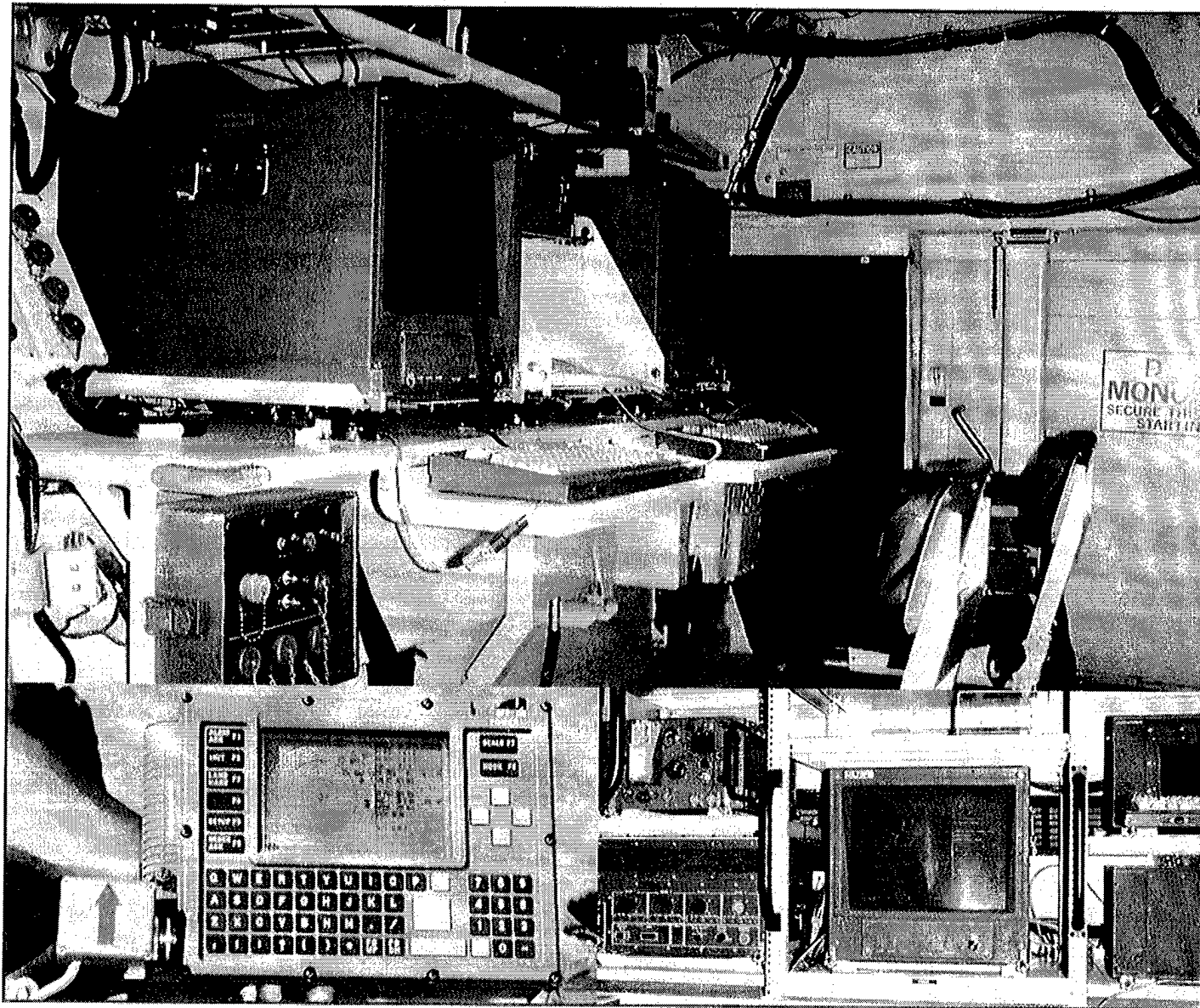
FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

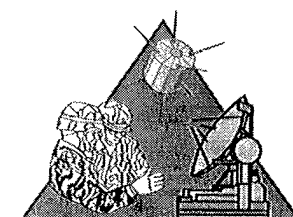
PROGRAM STATUS: A competitive solicitation resulted in an award for the ET effort on 31 March 1994. Critical Design Review conducted 2QFY95. Software and hardware testing completed 4QFY95.

PROJECTED ACTIVITIES: Completing fielding process to 201st MI Battalion 2QFY97. Completing new equipment training and working Block 1 upgrade 2QFY97. Fielding to 66th MI Battalion in 4QFY97.

PRIME CONTRACTOR: Engineering Research Associates (Vienna, VA)



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MISSION: The Forward Area Air Defense Command and Control (FAADC²) provides an automated means of providing timely target data to FAAD weapons, to protect friendly aircraft, and to facilitate management of the air battle.

CHARACTERISTICS: FAADC² consists of non-developmental computers, displays, printers, communication systems that are common to the Army Battle Command System (ABCS), non-developmental ground sensors and the requisite software that enhance the execution of air defense engagement operations (EO) and force operations (FO). FAADC² integrates air defense fire units, sensors, liaison elements, and command posts into a synergistic system capable of defeating and denying the serial threat. It provides the automated interface (Division and below) for the Air Defense component to the ABCS and allows the commanders and staffs to communicate, plan, coordinate, and control the counter-air fight. FAADC² is capable of collecting, storing, processing, displaying and disseminating situational awareness (air and ground), targeting data, and battle command information throughout FAAD units and from other ADA, Army, Joint and Combined elements. FAADC² enhances the ability of commanders, staff and weapon system operators to visualize battlespace, realize situational awareness, defeat the enemy, and synchronize operations with the supported unit.

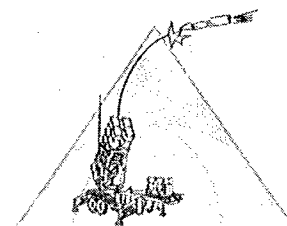
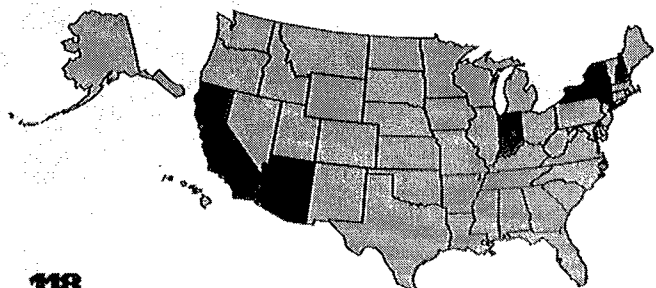
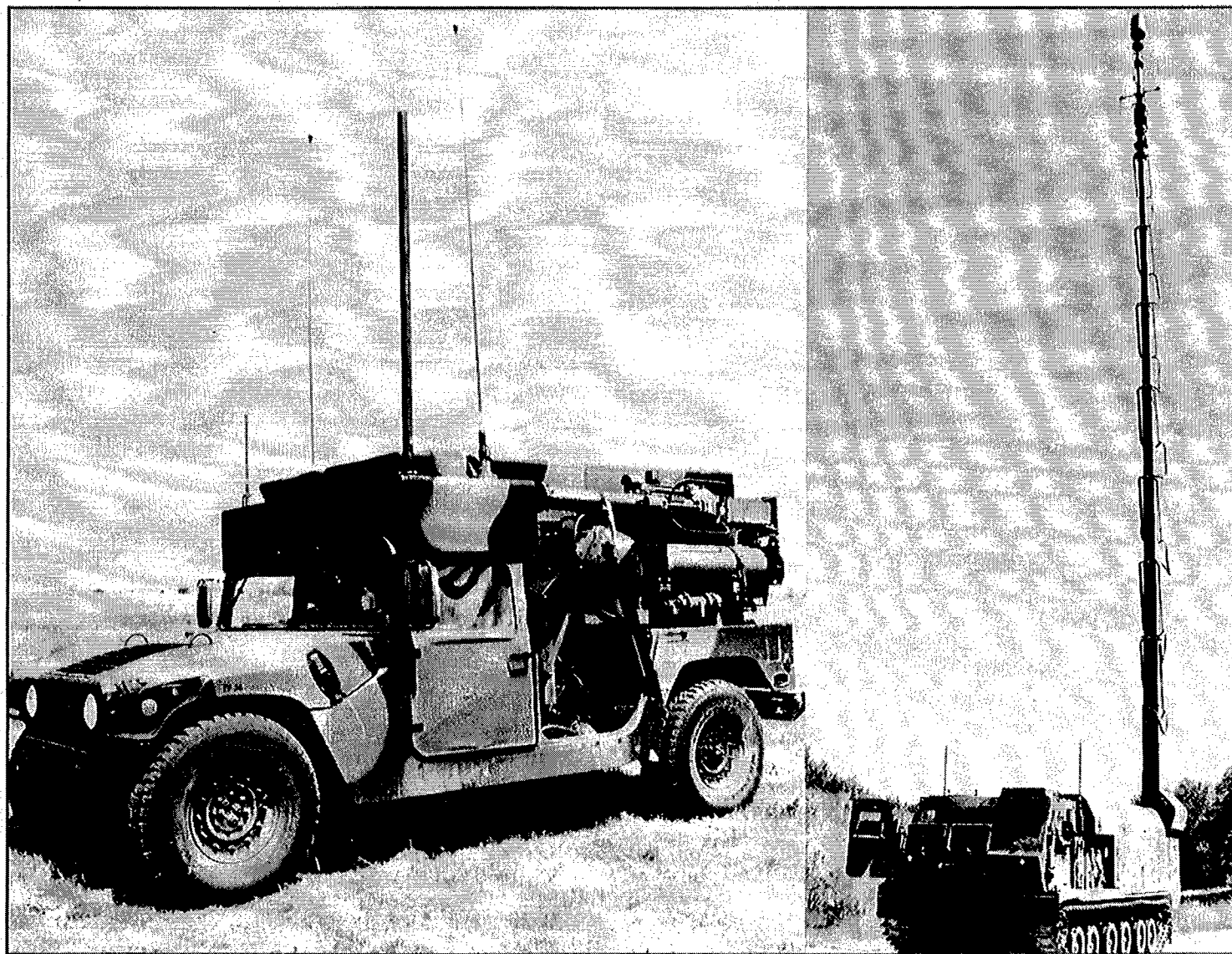
FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

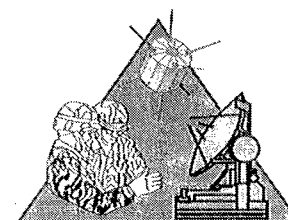
PROGRAM STATUS: The FAADC² system is currently in the Engineering and Manufacturing Development and Production phases. The basic effort consists primarily of software development, which is being developed incrementally. Block I was successfully tested and fielded. Block II builds on the basic capabilities of Block I by incorporating an improved ground based sensor, sensor netting, as well as establishing additional internal and external EO interfaces. Block II has completed all government testing and is being fielded to Heavy/Mechanized Army Divisions. Block III (Objective, 3QFY99) incorporates the fielding of the FAAD Battalion TOC, two way TADIL J connectivity, and improved force operations functionality. Block IV (FY00-04) provides for EO and FO preplanned product improvements (P3I). It is currently envisioned that the FAADC² system will be fielded to all active component FAAD units, selected ARNG FAAD units, and the training base.

PROJECTED ACTIVITIES: ATCCS VI - 1QFY97.
TFXXI Brigade Exercise - 2QFY97.
ABCS I - 1QFY98.
TFXXI Division Exercise - 1QFY98.

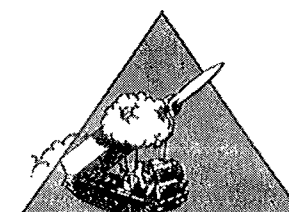
PRIME CONTRACTOR: TRW (Redondo Beach, CA)



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MISSION: The Ground Based Common Sensor-Light (GBCS-L) and the Ground Based Common Sensor-Heavy (GBCS-H) are vehicle mounted signals-intercept and precision emitter-location systems that intercept and identify enemy C3I emitters and radars and provide electronic countermeasures against enemy communications.

CHARACTERISTICS: GBCS, an intercept and precision emitter location system, provides Division commanders with the capability to intercept, precisely locate, and identify enemy conventional and Low Probability of Intercept (LPI) communications and noncommunications emitters and jam enemy conventional and LPI communications emitters. GBCS is an evolutionary, open architecture system which satisfies the Army's requirement to conduct tactical ground Communications Intelligence, Electronic Intelligence, Electronic Support against enemy communications and noncommunications emitters and Electronic Attack against threat communications; and enhances the commander's ability to outmaneuver and destroy the enemy by locating or jamming threat command and control, fire control, and air defense centers. The GBCS will be used in two platform configurations that can perform on all terrain. The GBCS-L will be deployed on a Highly Mobile Multipurpose Wheeled Vehicle (HMMWV) in support of Light Divisions. The GBCS-L can be transported by a C-130 or C-141. The GBCS-H will be deployed on a tracked vehicle (Bradley variant) in support of Armored and Mechanized Infantry Divisions. The GBCS-H can be transported by a C-17 and C-5.

FOREIGN COUNTERPART: No known foreign counterpart.

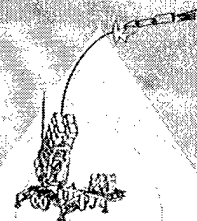
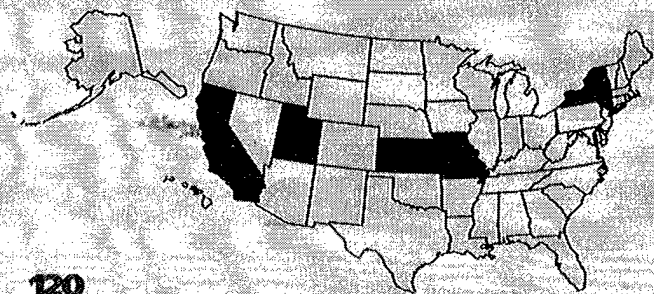
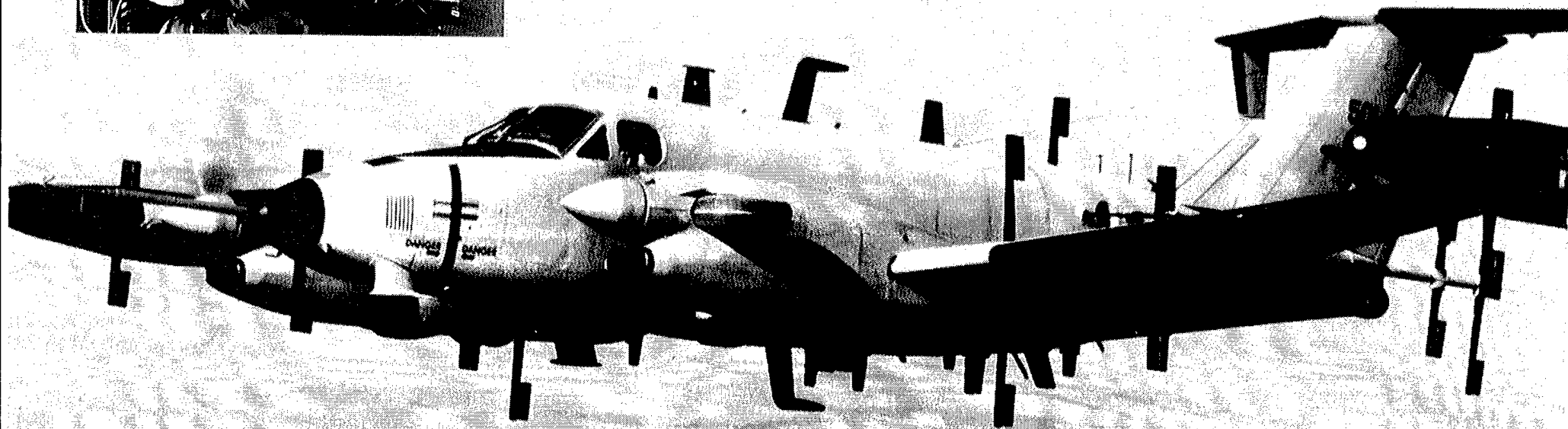
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: Both light and heavy variants are in the Engineering and Manufacturing Development phase. A Customer Test for GBCS-L was conducted 3QFY94 and a Special In-Process Review for the GBCS-L occurred in 4QFY94 to support a Limited Procurement production decision.

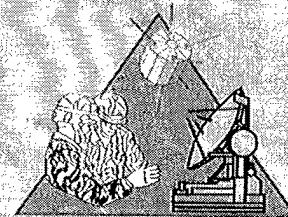
PROJECTED ACTIVITIES: GBCS-L IOT&E will be conducted in 4QFY97.

PRIME CONTRACTOR: Lockheed Martin (Owego, NY)

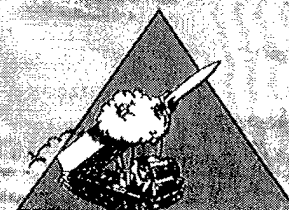
* See appendix for list of subcontractors.



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PRODUCTION AND DEPLOYMENT

Guardrail/Common Sensor (GR/CS)

MISSION: The Guardrail/Common Sensor's (GR/CS) mission is to provide a fixed-wing communication and electronic emitter intercept and direction-finding system with precision geolocation. GR/CS operations support Corps, Division, and Joint Land Force Component Commanders in precision strike operations, winning the information war, and digitization of the battlefield by providing timely information via the Joint Tactical Terminal and other means.

CHARACTERISTICS: The GR/CS is a Corps level airborne Signals Intelligence collection/location system. The GR/CS integrates the Improved Guardrail V Communication High Accuracy Airborne Location System, and the Advanced Quicklook into the same SIGINT platform. One GR/CS system is authorized per Aerial Exploitation Battalion in the MI Brigade at each Corps. A standard system consists of twelve aircraft which fly operational missions in sets of three. GR/CS provides near real-time SIGINT and targeting information to tactical commanders throughout the Corps area with emphasis on Deep Battle and Follow-on Forces Attack support. Ground processing is conducted in the Integrated Processing Facility (IPF). Interoperable Data Links provide microwave connectivity between the aircraft and the IPF. Primary reporting is accomplished via Commander's Tactical Terminals. Key features include integrated COMINT and ELINT reporting, enhanced signal classification and recognition, near real-time direction finding, precision emitter location, and an advanced integrated aircraft cockpit. Preplanned product improvements include frequency extension, computer assisted on-line sensor management, upgraded data links, and the capability to exploit a wider range of signals. GR/CS shares technology with the Ground Based Common Sensor, Airborne Reconnaissance Low, and other Joint systems.

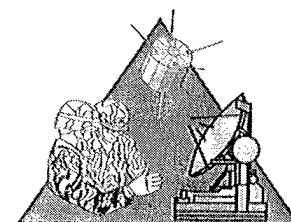
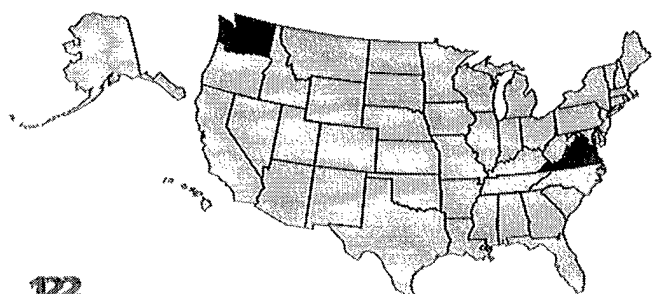
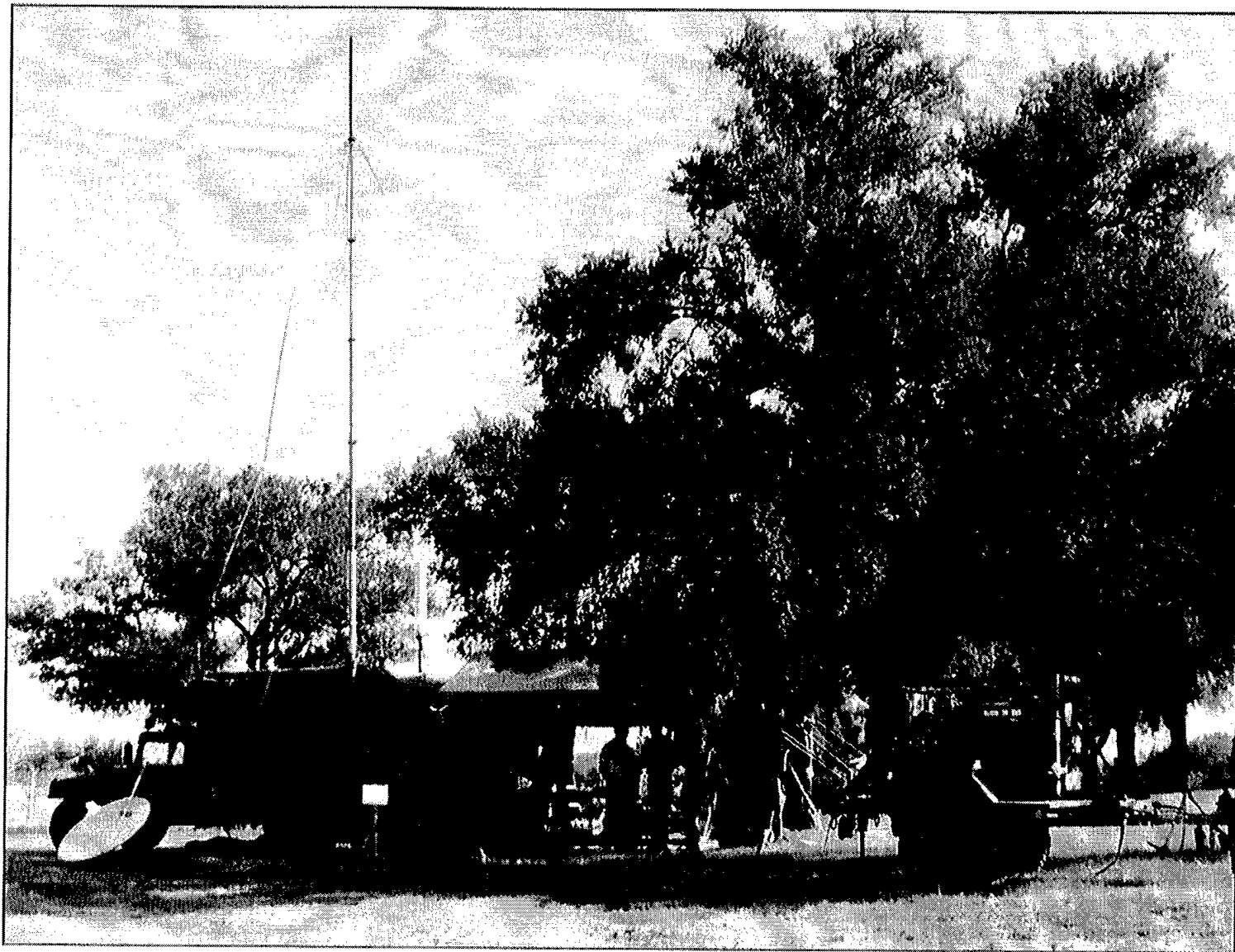
FOREIGN COUNTERPART: Numerous countries possess airborne electronic warfare systems, but none achieves the direction-finding accuracy of the Guardrail system.

FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: The Guardrail systems currently in service include the Improved Guardrail V (RC-12D aircraft) and the Guardrail Common Sensor (RC-12H/K/N/P aircraft). GR/CS was fielded to Korea in 1988, Europe in 1991, and the XVIII Corps in 1994. A remote relay capability that allows forward deployment of aircraft while the ground processing facility remains in CONUS was a component part of the XVIII Corps system. The last GR/CS system is in the production and deployment phase and will be fielded in FY99.

PROJECTED ACTIVITIES: Incorporate TIB/TRIXS capability into all four systems (FY97-99).
Incorporate joint interoperability upgrades to all four systems (FY97-98).

PRIME CONTRACTOR: Raytheon (Raytheon Aircraft) (Wichita, KS)
TRW (Sunnyvale, CA)



| CHALLENGE AND TECHNOLOGY | CONCEPT | DEVELOPMENT | PRODUCTION AND DEPLOYMENT | OPERATIONS AND SUPPORT |
|--------------------------|---------|-------------|---------------------------|------------------------|
|--------------------------|---------|-------------|---------------------------|------------------------|

PRODUCTION AND DEPLOYMENT

MISSION: The Integrated Meteorological System (IMETS) is the weather component of the Intelligence Electronic Warfare (IEW) sub-element of the Army Battle Command System (ABCS). IMETS provides commanders at all echelons with an automated weather system to receive, process, and disseminate weather observations, forecasts, and weather and environmental effects decision aids to all Battlefield Operating Systems (BOS).

CHARACTERISTICS: Integrated Meteorological System (IMETS) is a Heavy High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) mounted tactical system which provides automation and communications support to Air Force staff weather teams assigned to echelons from brigade through Echelons Above Corps (EAC) and to Army Special Operations Forces. IMETS receives weather information from polar-orbiting civilian and defense meteorological satellites, Air Force Global Weather Central, artillery meteorological and remote sensors, and civilian forecast centers. IMETS processes and collates forecasts, observations, and climatological data to produce timely and accurate weather products tailored to the specific Warfighter's needs. The most significant weather and environmental support to Warfighters are the automated tactical decision aids produced by the IMETS. These graphics go beyond briefing the weather by displaying the impact of the weather on current, projected, or even hypothesized conditions on both friendly and enemy capabilities. Instead of merely reacting to the weather, the Warfighter can take advantage of the enhanced weather knowledge in his planning cycle.

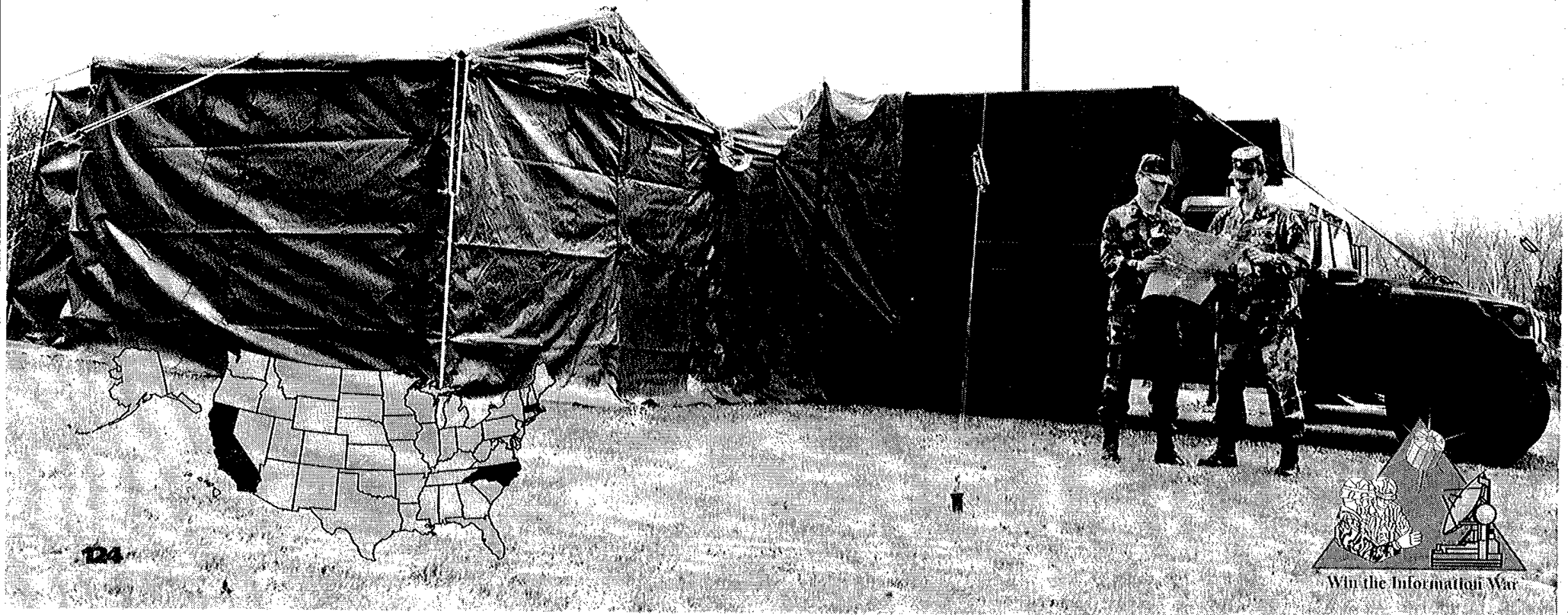
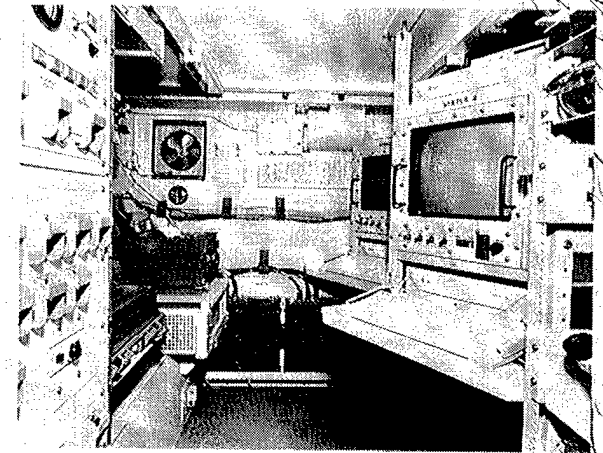
FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: IMETS has a streamlined evolutionary acquisition strategy, relying heavily on commercial off-the-shelf/Government off-the-shelf (COTS/GOTS) and Non-Developmental Items (NDI) products. These products are then packaged into upgrades and enhancements to the fielded IMETS. IMETS was fielded to 15 high priority units through FY96. The IMETS Block II fielding effort will be initiated in FY97 after the successful conclusion of the Developmental Test and Operational Assessment in February 1997. Block II will be fielded to 17 units first, then the Block I systems will be upgraded to the latest configuration.

PROJECTED ACTIVITIES: Complete fielding of IMETS Block I to priority units.
Conduct Technical and Operational Test on IMETS Block II.
Obtain a Milestone III Production and Fielding decision on IMETS Block II.
Initiate Fielding of IMETS Block II systems.
Participate in Task Force XXI and JWID 97 warfighter exercises.

PRIME CONTRACTOR: Logicon (Arlington, VA; Tacoma, WA)
Sytex (McLean, VA)



EMD

Integrated System Control (ISYSCON)

MISSION: The Integrated System Control (ISYSCON) provides an automated, theater-wide system that Signal units can use to manage multiple tactical communications systems in support of battlefield operations.

CHARACTERISTICS: ISYSCON represents the Signal Corps' major thrust to overcome network management problems identified during Operation Desert Storm and other recent deployments. The ISYSCON facility will provide an automated, integrated method for managing the tactical communications network, establish an interface with each technical control facility in the Army Tactical Command and Control System (ATCCS) architecture, and enable automation-assisted configuration and management of a dynamic battlefield. A change to the requirements document has added planning and management of satellite resources as a requirement. The ISYSCON has been selected as the network management system for joint task force use. The spectrum management software has been designated as part of the migration system for DoD use. An ISYSCON node consists of an S-250 shelter on a heavy HMMWV and two extension tents, two server and four client workstations, and peripherals. An ISYSCON node can support up to 20 remote terminals distributed by the S3 to various Signal officers. (Each ISYSCON node will be provided with 10 remote terminals.) Signal S-3 staffs will use ISYSCON to manage Army and JTF tactical battlefield information systems for both deployed and split-based operations.

FOREIGN COUNTERPART: No known foreign counterpart.

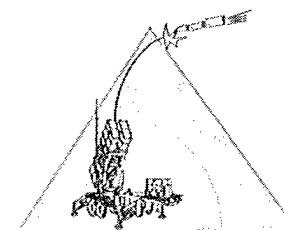
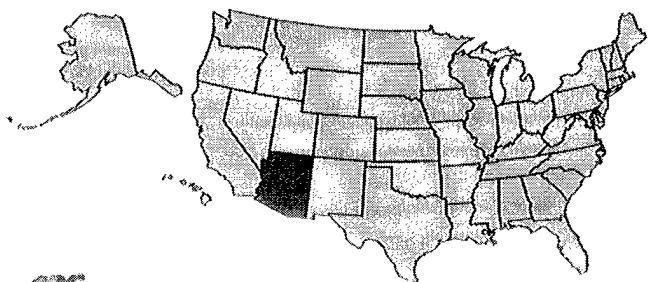
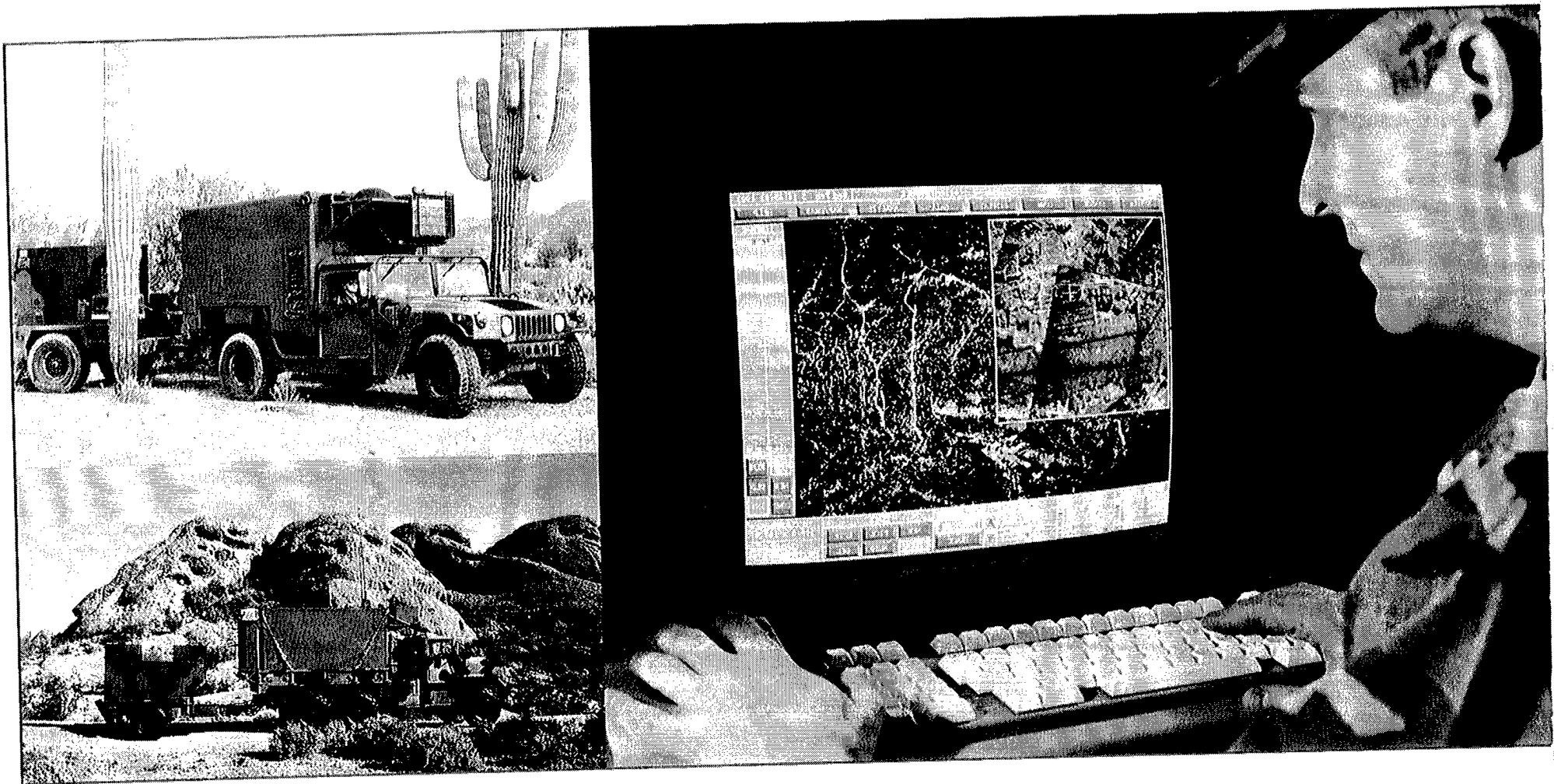
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: The ISYSCON contract was awarded to GTE Government Systems in 4QFY92. The program was approved to enter Low Rate Initial Production (LRIP) in 3QFY95, and had a successful Development Progress Review (DPR) in 4QFY97 for the IOT&E. Phase 1 (ECB) capability is anticipated to be fielded to select units in 4QFY97 for the IOT&E.

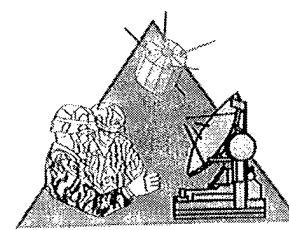
PROJECTED ACTIVITIES: Phase 1 Beta issue is scheduled for 1QFY97 in preparation for ISYSCON Initial Operational Test & Evaluation in 4QFY97. MS III Full Rate Production decision review is planned for 1QFY98. Production contract award will follow in 1QFY98.

PRIME CONTRACTOR: GTE (Taunton, MA; Raleigh, NC)

* See appendix for list of subcontractors.



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Win the Information War



Conduct Precision Strike

| SCIENCE AND TECHNOLOGY | CONCEPT | DEM/VAL | PRODUCTION AND DEPLOYMENT | OPERATIONS AND SUPPORT |
|------------------------|---------|---------|---------------------------|------------------------|
| | | EMD | | |

MISSION: The Joint Surveillance Target Attack Radar System (Joint STARS) Ground Station Module (GSM) provides long-range radar and other sensor surveillance battle management and targeting data to tactical commanders.

CHARACTERISTICS: Joint STARS is a joint Air Force/Army program. The airborne platform is a USAF E-8 (a militarized Boeing 707) with a multimode radar (capable of wide area surveillance and synthetic aperture modes), 18 operation and control consoles, a Surveillance and Control Data Link (SCDL), and secure communications. Orbiting a safe distance from the Forward Line of Troops, Joint STARS radar scans a wide area of the battlefield at long ranges. The radar data are received by Air Force and Army operators aboard the aircraft and then downlinked to multiple GSMs via the SCDL. The information provides tactical air and ground commanders with near-real-time wide area surveillance and deep targeting data. The Joint STARS system can detect, locate, track, classify, and assist in attacking both fixed and moving targets beyond the FLOT during daylight and darkness in nearly all weather conditions.

The GSM is a mobile, tactical, multisensor ground station that receives, displays, processes, and disseminates targeting battle management and intelligence information to all echelons. In addition to Joint STARS radar data, the GSM is now capable of receiving and displaying Unmanned Aerial Vehicle imagery as well as signals intelligence data via an integrated Joint Tactical Terminal. The GSM is being produced in two variants: a medium version (MGSM) mounted on a 5-ton truck and a light version (LGSM) mounted on a High Mobility Multipurpose Wheeled Vehicle (HMMWV). The Common Ground Station (CGS) will be a light version mounted on a HMMWV. Beginning in FY96, the GSM will transition into the CGS which will also be HMMWV mounted. The CGS will be a key node on the digitized battlefield, receiving multiple national, theater, and tactical sensor input.

FOREIGN COUNTERPART: Britain: Astor France: Horizon Italy: Creso

FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: The Joint STARS MGSMs have completed the Low Rate Initial Production (LRIP) phase. Fielding of MGSMs started in 2QFY96, and will continue through 2QFY97. LGSM fielding will begin 4QFY97 and continue through 2QFY98. Six Interim GSMs (IGSM) have been fielded to contingency forces and will be cascaded from original units to 3 gaining units 1QFY97 through 2QFY97. The CGS Production Contract was awarded 1QFY96 and initial fielding begins 2QFY98. Fielding of MGSMs will be completed 1QFY97.

PROJECTED ACTIVITIES: Initial Operational Test of the initial CGS units is planned for 4QFY97. The CGS Full Production (Milestone III) Decision is scheduled for FY98.

PRIME CONTRACTOR: CGS: Motorola (Scottsdale, AZ)
* See appendix for list of subcontractors.

PRODUCTION AND DEPLOYMENT

Joint Tactical Terminal (JTT)

MISSION: The Joint Tactical Terminal (JTT) and Commanders Tactical Terminal (CTT) provide the joint warfighter with seamless, near-real-time tactical intelligence and targeting information.

CHARACTERISTICS: The JTT and CTT provide the critical data link to battle managers, intelligence centers, air defense, fire support and aviation nodes across all services. JTT allows Army, Air Force, Navy and Marine Corps users to exploit intelligence broadcast networks, including: Tactical Reconnaissance Intelligence Exchange Service, Tactical Information Broadcast Service, Tactical Related Applications, Tactical Data Information Exchange System-B and Secondary Imagery Dissemination via a General Purpose Link. In addition to receiving intelligence data, data provider or relay functions are provided.

The JTT and CTT are provided for integration into systems on vehicles, aircraft, ships, and fixed sites.

FOREIGN COUNTERPART: No known foreign counterpart.

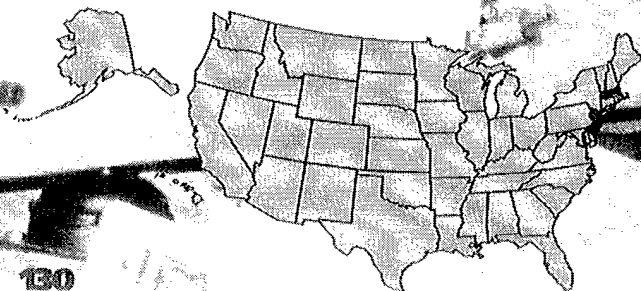
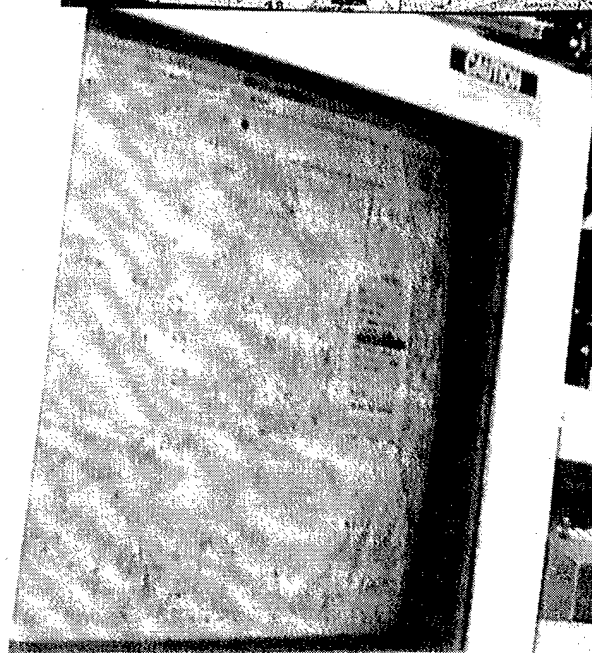
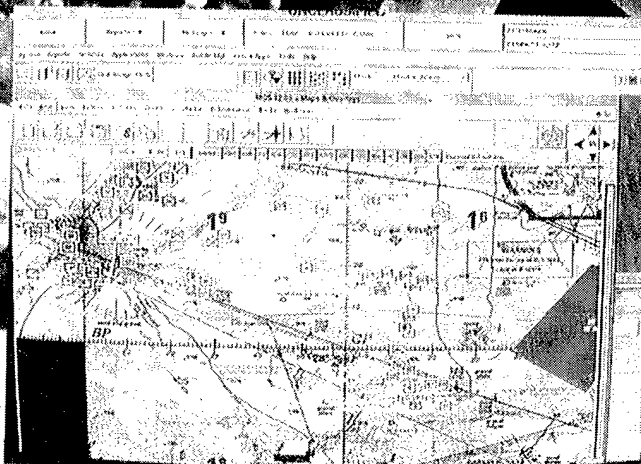
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: A contract was awarded 2QFY96 for 79 CTT3s for the Army, Navy, and Marine Corps urgent requirements. A contract was also awarded 4QFY96 for 85 JTT/Common Integrated Broadcast Service-Modules (JTT/CIBS-M). Fielding of the CTT One Channel is complete. One hundred and eighty CTT Two Channel receivers have been delivered to various elements within the Army, Air Force, Navy, Marine Corps and Special Operating Forces, and fielding continues. Seven CTT3s have been delivered.

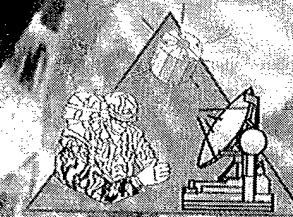
PROJECTED ACTIVITIES: Delivery of 79 urgent CTT3s in 3QFY97. The Integrated Broadcast Service Operational Requirements Document will be approved FY97.

PRIME CONTRACTOR: CTT: E-Systems (ECI Division) (St. Petersburg, FL)
JTT: Hughes (Fort Wayne, IN)

*See appendix for list of subcontractors.



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Win the Information War



Dominate the Maneuver Battle

EMD

Maneuver Control System (MCS)

MISSION: The Maneuver Control System (MCS) provides Army tactical commanders and their staffs (corps through battalion) automated, on-line, near-real-time systems for planning, coordinating, and controlling tactical operations. It automates the creation and distribution of the relevant common picture of the battlefield for the Army Battle Command System (ABCS).

CHARACTERISTICS: MCS is the primary battle command source, providing the common picture, decision aids, and overlay capabilities to support the tactical commander and his staff. It integrates information from other ABCS Battlefield Automated Systems to provide timely accurate status of battle information. V 12 of MCS will provide the initial implementation of the Defense Information Infrastructure (DII) Common Operating Environment (COE) and evolution to the Army Battle Command System. MCS will be fielded on CHS-2 hardware and will implement a client/server architecture.

FOREIGN COUNTERPART: No known foreign counterpart.

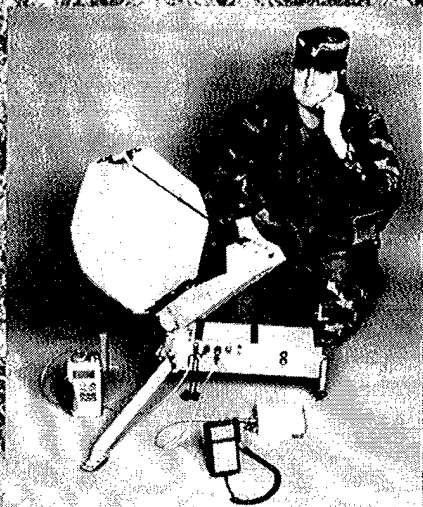
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: Currently, MCS Version 10.03.1G software is fielded to all heavy Army units with non-developmental item equipment. Block IV Development Contract awarded to Lockheed Martin in September 1996.

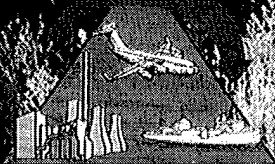
PROJECTED ACTIVITIES: Participate in Task Force XXI 2QFY97.
Fielding MCS 12.1 with CHS-2 scheduled to begin in FY98.
Beta version issued to selected units.

PRIME CONTRACTOR: Block IV contractor: Lockheed Martin
Block III contractors: CSC (Eatontown, NJ)
Mitre (Eatontown, NJ)
Telos (Shrewsbury, NJ)

* See appendix for list of subcontractors.



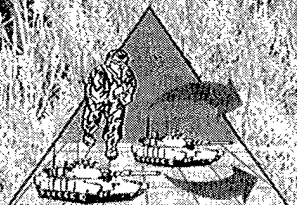
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Project & Sustain



Win the Information War



Dominate the Maneuver Battle

EMD

MISSION: The Army is DoD's lead service for development and acquisition of a family of ground terminals for all services and special users, as part of the Extremely High Frequency (EHF) joint Milstar satellite communications program. Milstar satisfies the requirement for worldwide, two way, anti-jam, low probability of intercept, secure voice, and data communications to enable the National Command Authority and Commanders-in-Chief to command and control strategic, operational, and tactical forces through all levels of conflict and crisis. Milstar greatly enhances the fighting effectiveness of US Forces through interservice, interoperable, synergistic command and control communications for all force elements, from special operations to battlefield maneuvers.

CHARACTERISTICS: Milstar provides a seamless, interoperable communications capability that satisfies the Force Projection Army critical operational communications requirement. It provides a range-extension capability that is interoperable with all services and other satellite and ground systems, that keeps up on the battlefield and provides the warfighting commander assured communications. The terminals are capable of rapid set-up and tear-down and provide uninterrupted, secure, anti-jam communications for tactical forces, even under harsh electromagnetic conditions. The SMART-T, mounted on a standard HMMWV, provides range extension for the Army's Mobile Subscriber Equipment system at Echelons Corps and Below. It processes data and voice communications at both Low Data Rate (LDR) and Medium Data Rate (MDR) (75 bps - 1.544 mbps). SCAMP is a manportable, battery-powered terminal that provides LDR secure voice at 2400 bps and secure data at 75-2400 bps. The user owned and operated SCAMP has embedded COMSEC and TRANSEC and includes an accessory AC/DC converter to enable the terminal to function on external power. In addition, the terminal provides a capability to operate in four simultaneous, half duplex, communications channels. Efforts are underway for the development of technologies leading to an objective SCAMP Block II 12-15 pound manpackable terminal. The Army is also integrating eight Air Force procured Ground Command Post (GNDGP) Terminals into the Army force structure. The GNDGP is a network control terminal, in fixed and transportable configurations, which operates and manages assigned service/CINC Milstar communications and user priorities.

FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: SMART-T: PEO C3S Low Rate Initial Production (LRIP) In-Process Review - Jan 96. Down select and award of LRIP/Full Rate Production (FRP) contract to Raytheon - 7 Feb 96.

SCAMP: Competitive, best value, source selection, including equipment demonstrations 1-2QFY96. Production Contract awarded to Rockwell International 2QFY96.

PROJECTED ACTIVITIES: SMART-T: Initial Operational Test & Evaluation (IOT&E) - FY98. First Unit Equipped (FUE) - FY98.

Milestone III Decision to enter FRP - FY99.

SCAMP: Follow-on test & evaluation (FOT&E) - 4QFY97. FUE - 1QFY98.

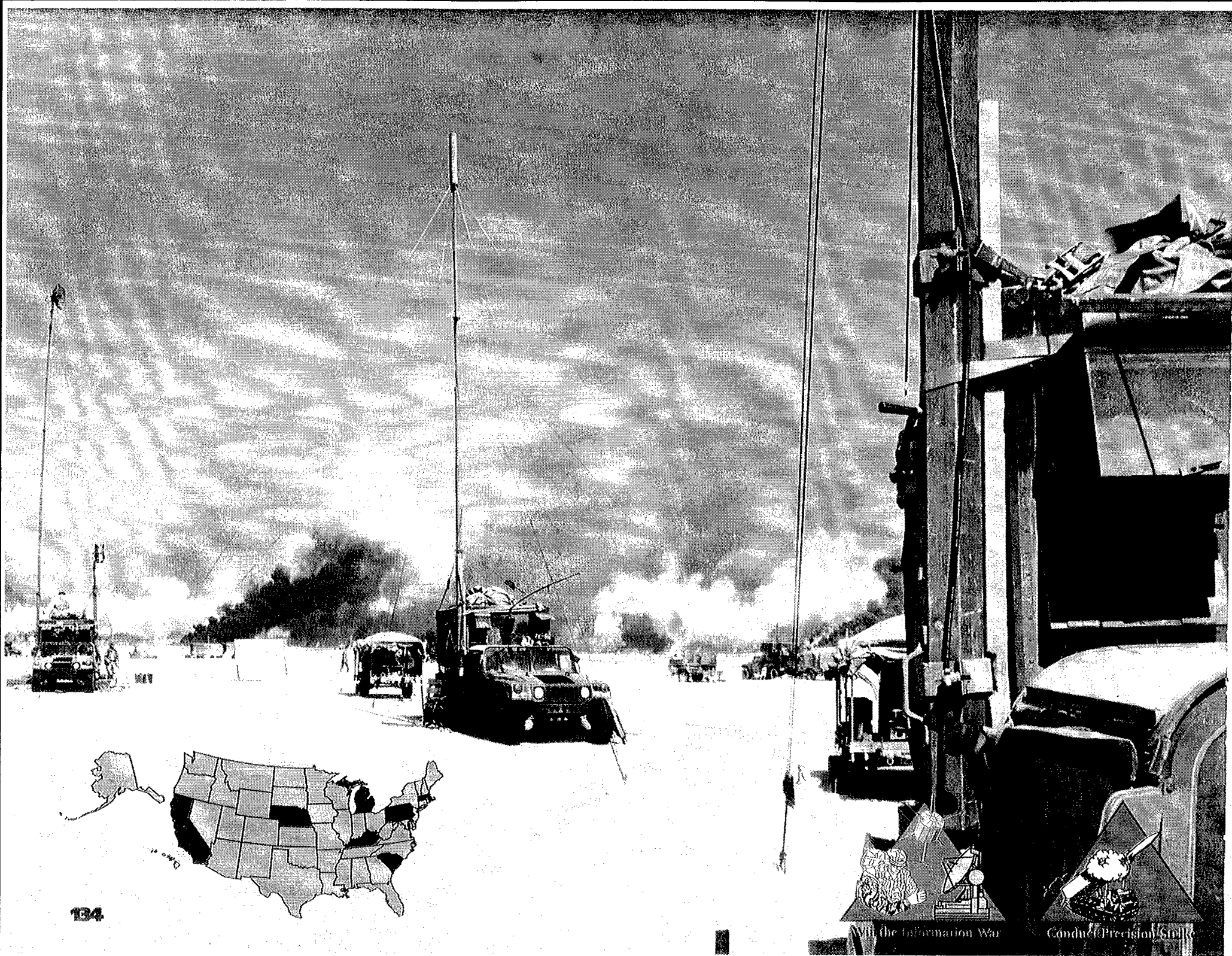
Award contract(s) for Engineering Feasibility Efforts (EFE) to support the Block II program - FY97

PRIME CONTRACTOR: SMART-T: Raytheon Electronics Systems Division (Marlboro, MA)

SCAMP: Rockwell International (Richardson, TX)

SCAMP Block II: TBD

*See appendix for list of subcontractors.



MISSION: The Mobile Subscriber Equipment (MSE) provides the tactical U.S. Army commander with a secure, automatic, highly mobile, quickly deployable, survivable, tactical communications system capable of passing data, facsimile, and voice traffic throughout the division and corps area of operations.

CHARACTERISTICS: The major items of equipment are integrated into five functional areas. Subscriber Terminals provide the voice and data elements to interface with other functional areas of the MSE system. Mobile Subscriber Access radiotelephone terminals permit mobile and stationary users to automatically communicate secure voice and data throughout the tactical area of operations. Wire Subscriber Access allows nonradio users entry to the MSE system through concentrations of automatic switching equipment. Area coverage of the battlefield from mobile or fixed locations is achieved through secure automatic switching, continuous coverage, and the ability of commanders and staff to retain the same telephone number regardless of location. System Control provides an automated Corps-wide MSE system management capability, which is itself mobile, moving with the elements it controls.

FOREIGN COUNTERPART: No known foreign counterpart.

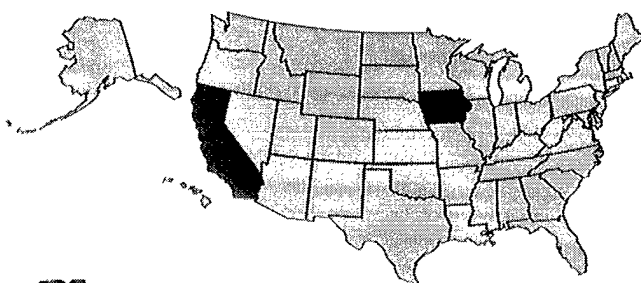
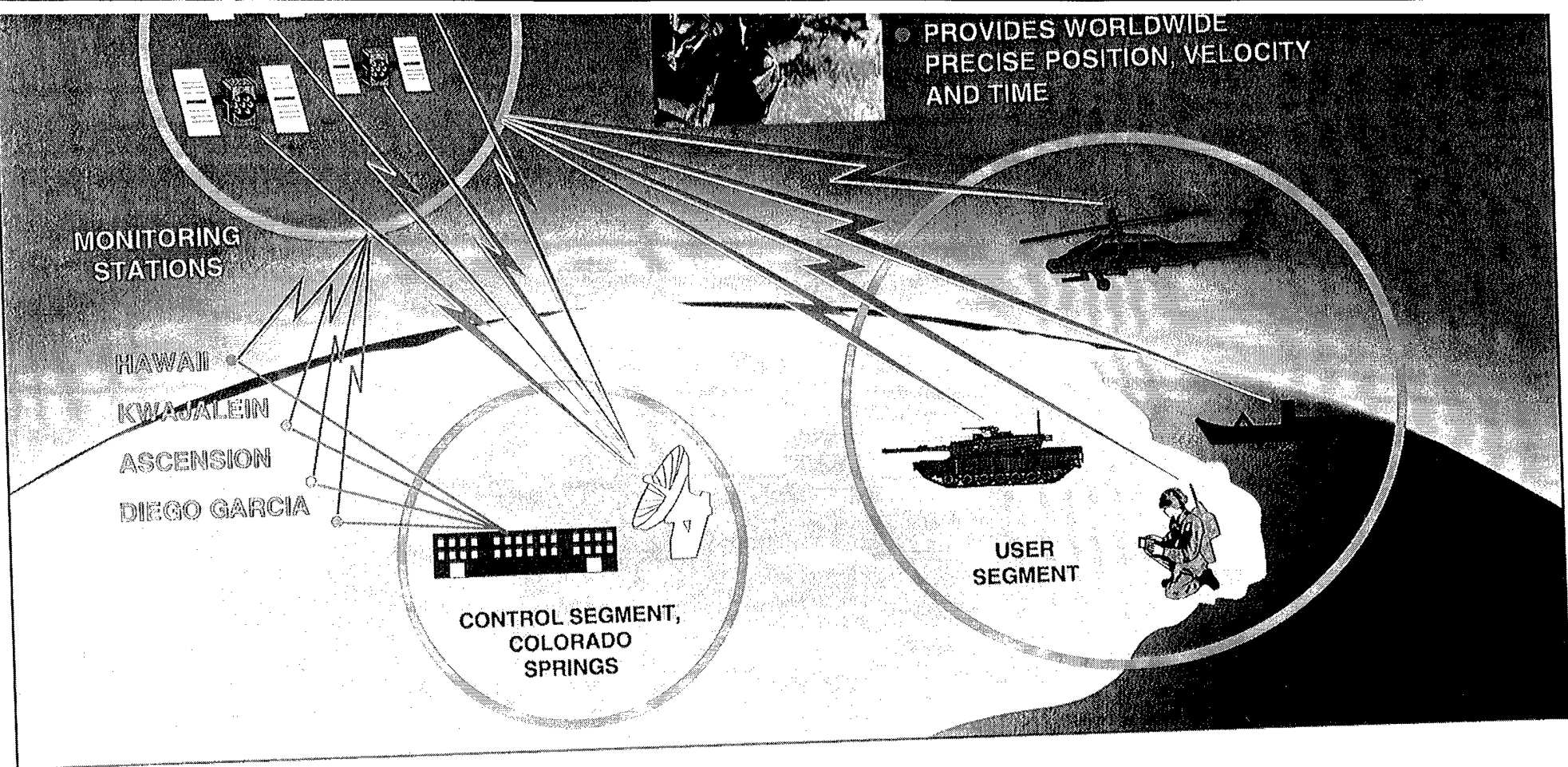
FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: All Signal Battalions scheduled to receive MSE have been successfully fielded. Final unit fielding was completed in November 1993. An approved System Modernization Plan (SIP) is in place to provide technological upgrades that will improve system performance and extend the life of the equipment. A routing improvement program (CSRIP) is currently being fielded and will provide a common software baseline for MSE and AN/TTC-39 A/D switches.

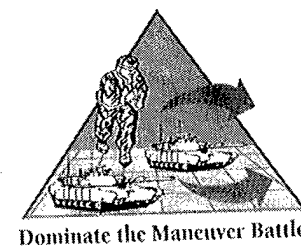
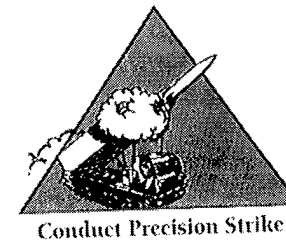
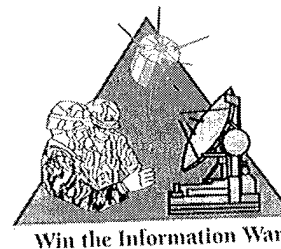
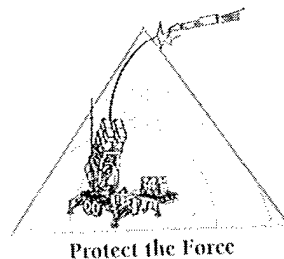
PROJECTED ACTIVITIES: Enhanced Switch Operation Program.
Packet Network Management Center Improvements.
Training Device Upgrade.
Network Management Tool Implementation.
Internet Protocol Router (BGP-4) Upgrade.
Continue Routing Improvement Program (CSRIP).
Incorporate Asynchronous Transfer Mode (ATM) technologies.

PRIME CONTRACTOR: GTE (Taunton, MA)

*See appendix for list of subcontractors.



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PRODUCTION AND DEPLOYMENT

NAVSTAR Global Positioning System (GPS)

MISSION: The mission of NAVSTAR Global Positioning System (GPS) is to provide accurate, continuous, all-weather, common grid, worldwide navigation, positioning, and timing information to land, sea, air, and space-based users.

CHARACTERISTICS: The NAVSTAR GPS is a joint Army, Navy, and Air Force program, with the Air Force as the lead service. GPS is a space-based navigation, three-dimensional positioning, and time-distribution system. The GPS has three segments: a space segment, consisting of 24 satellites; a ground control segment; and a user segment. The Army is the lead service in the Joint Program Office for the Ground User Segment with approximately 80% of total DoD requirements. The user segment consists of receiver configurations for ground, aircraft and seacraft applications. The GPS receiver is a passive device that will be deployed extensively at all echelons and with Army aircraft.

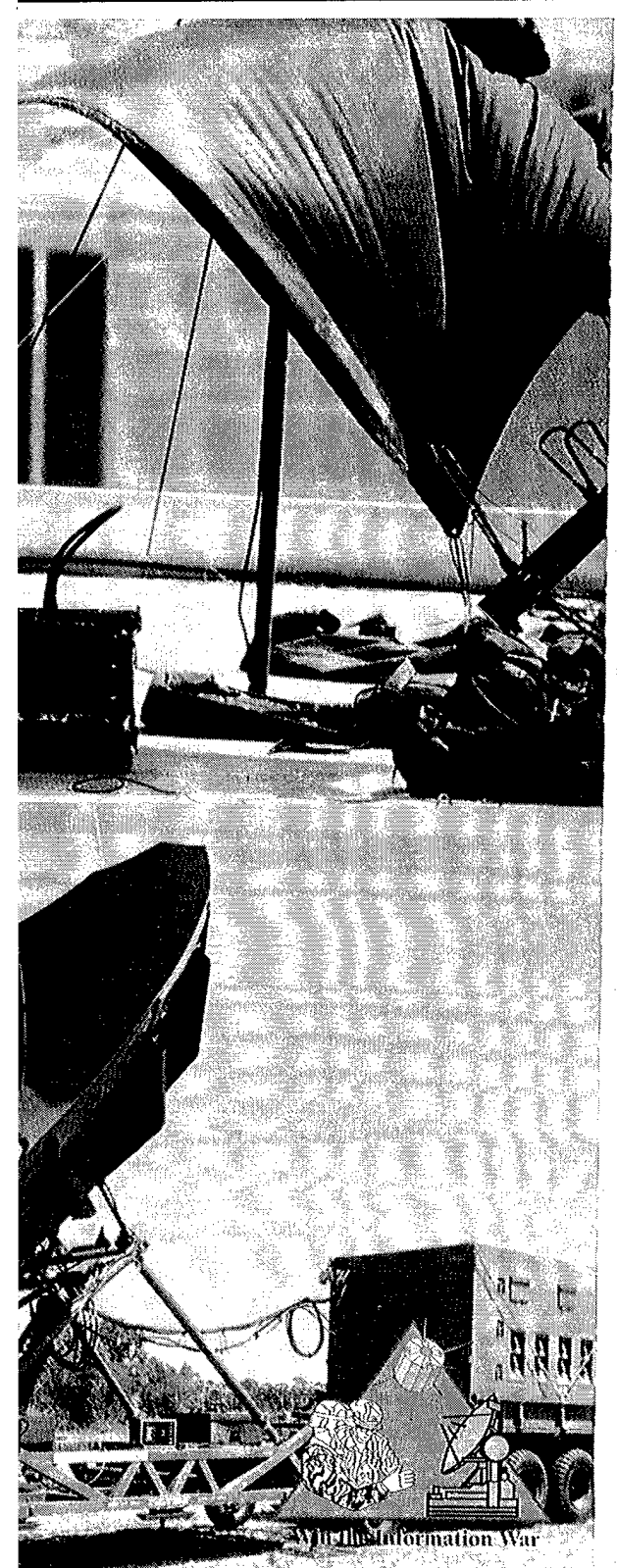
FOREIGN COUNTERPART: The Russians have developed a similar system, GLONASS. Financed through European firms, GLONASS has matured to 21 spacecraft. GLONASS operates in a different portion of the same frequency band as NAVSTAR GPS, with slightly less accuracy.

FOREIGN MILITARY SALES: Coded FMS GPS Receivers are handled by the Air Force GPS Office through Joint coordination. Standard commercial GPS receivers are a world open market resource.

PROGRAM STATUS: The last Precision Lightweight GPS Receiver (PLGR) production option will be awarded in 2QFY97. The Army has acquired 100,000 hand held units to date and worldwide fielding has been ongoing since October 1993 on an accelerated basis. The PLGR enhancement was awarded May 1995 and provides Army users with the following: 50% lower power consumption, improved ease of use, automatic leg advance, updated datums, enhanced satellite vehicle selection for reduced re-acquisition time, magnetic variation entry/display improvements, larger user defined screens, more routes and legs, auto zeroized warning, and present position naming. As SLGRs are rapidly displaced by PLGRs, 1000 SLGRs will be upgraded to Precise Positioning Service (PPS) accuracy and reallocated as inexpensive receivers for the non-modernized rotary wing fleet. These receivers will be designated as Stand Alone GPS Receivers (SAGRs). The Miniaturized Airborne GPS Receivers (MAGR), the AN/ASN-149 and GPS embedded in AN/ASN-128/G and INS are for modernized aircraft fleet. The Cargo Utility GPS Receiver (CUGR) will be the objective solution for UH-1 aircraft. A contract award for CUGR was awarded in September 1996. The Army has completed a new operational requirement for PLGR replacements. The Direct Access GPS Receiver (DAGR) requirement consists of 114,000 units with initial production in FY99.

PROJECTED ACTIVITIES: PM GPS will complete fielding of PLGR to all major Active Army elements during 1QFY97. Total PLGR fielding for FY97 is approximately 12,000. Option 5 award for MAGR is planned for March 1997. Aside from the DAGR initiative, the Army is conducting extensive research in GPS navigation

PRIME CONTRACTOR: Rockwell International (Cedar Rapids, IA)
Trumble Navigation (Sunnyvale, CA)



Win the Information War

PRODUCTION AND DEPLOYMENT

MISSION: The mission of Satellite Communications (SATCOM) is to satisfy Joint Chiefs of Staff validated Command, Control, Communications, Computers, and Intelligence (C4I) requirements supporting the President, National Command Authority, Commanders in Chief (CINC), Military Departments, Intelligence community, and NATO. Satellite communications provide the CINC the reach-back capability between the forward deployed force and the CONUS sustaining base required to support Army power projection.

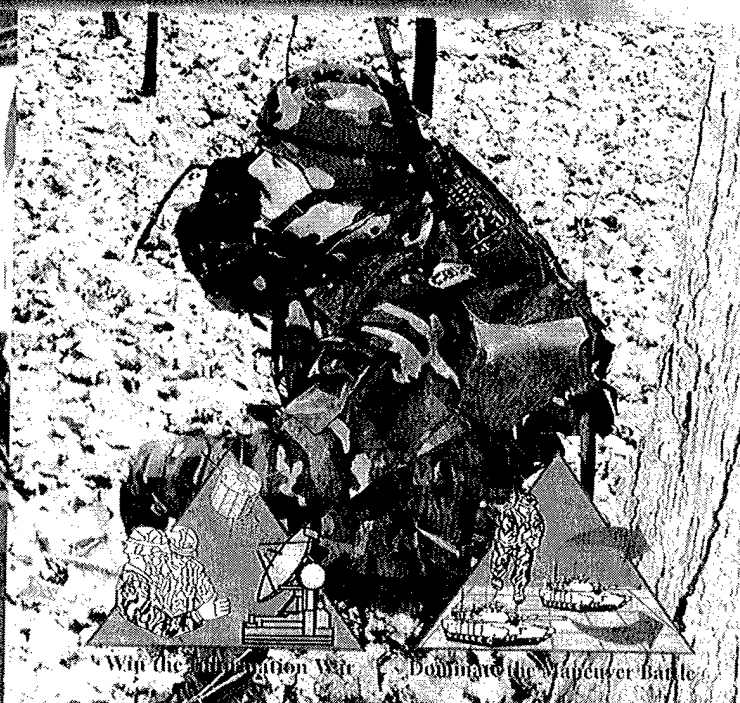
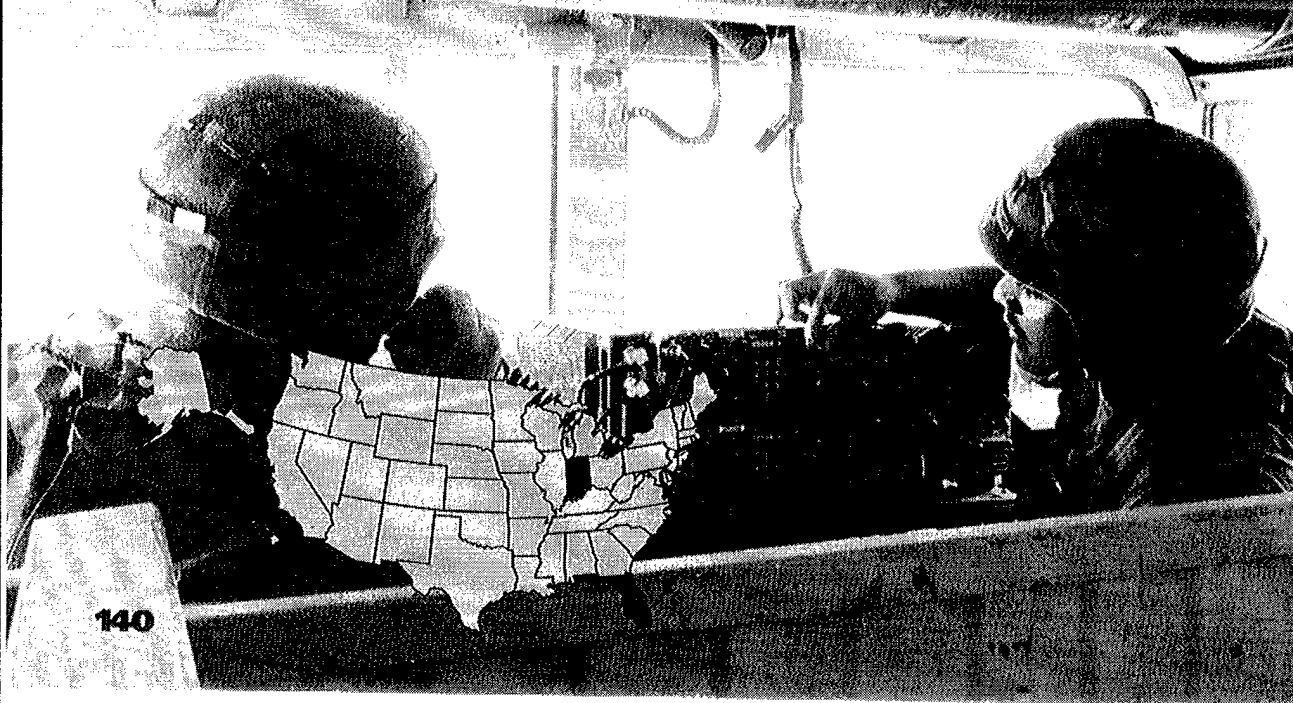
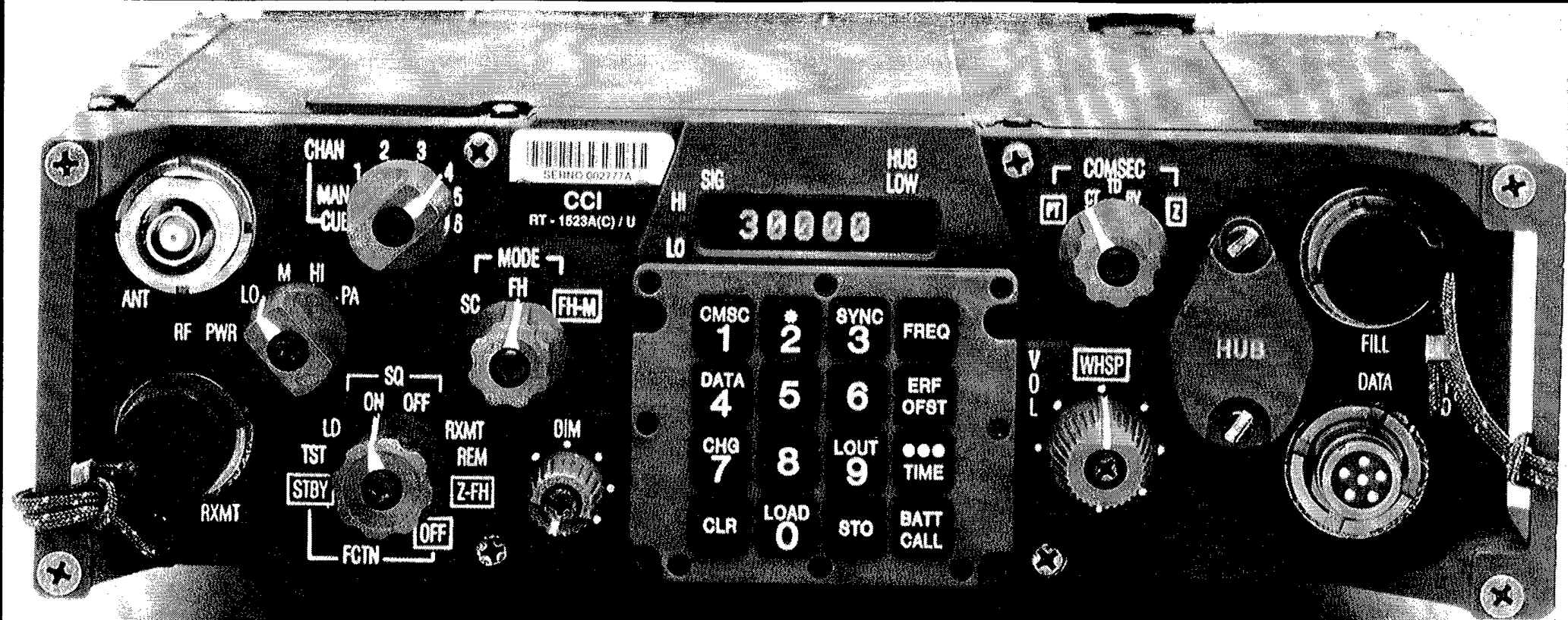
CHARACTERISTICS: Fixed strategic, theater, and mobile tactical satellite (TACSAT) communications terminals characterize SATCOM. The satellite equipment uses all DoD SATCOM systems, including the Fleet Satellite/Air Force Satellite (FLTSAT/AFSAT) Ultra High Frequency (UHF) system, UHF follow-on (UFO) system, and the Defense Satellite Communications System (DSCS) Super High Frequency (SHF) X-Band.

PROGRAM STATUS: The Army is procuring the AN/PSC-5 Spitfire UHF Manpack Terminal a/k/a EMUT and related equipment in support of the Army, Air Force, Marine Corps, and Special Operations Forces unit requirements for use on FLTSAT/AFSAT/UFO. The Spitfire has embedded Communications Security and demand assigned multiple access capability. For SHF TACSAT Terminals, the Army acquired, tested, and fielded the AN/TSC-143 Prototype Tri-Band Terminal (PT3) to the 11th Signal Brigade, Power Pac 3 Company. Additionally, Army is procuring the SHF TRI-BAND Advanced Range Extension Terminal (STAR-T) which will be an SHF terminal mounted in a HMMWV and will eventually replace the AN/TSC-85B/93B Tactical Satellite Terminals for the Army. These terminals will expand TACSAT capabilities because they are capable of using commercial C or Ku bands, or the existing DSCS X Band. For the strategic DSCS, the Army will continue to modernize its heavy and medium fixed terminal facilities and transportable terminals, and modernize the light contingency terminals, provide digital equipment upgrades, and expand the control subsystem to enhance satellite and communications payload control operations. Contract awarded for four SOFTACS LRIP terminals in August 1996. STAR-T will be an option to this contract Milestone I-IIIa planned for 1QFY97 and contract option award planned for 2QFY97.

PROJECTED ACTIVITIES: Continue the modernization of all the fixed site AN/FSC-78/79 SATCOM terminals through FY99. Initiate the modernization of the AN/GSC-52 SATCOM terminals (fixed and transportable) in FY97. Initiate Universal Modem System (UMS) production and award contract in FY97. Continue on-going DSCS ground segment Control System upgrade in accordance with the Objective DSCS Operations Center Operational Requirements Document.

PRIME CONTRACTOR: Cincinnati Electronics (Cincinnati, OH)
Harris (Melbourne, FL)
Magnavox (Ft. Wayne, IN; Torrance, CA)
Raytheon (Marlborough, MA)
Titan (San Diego, CA)

GTE (Taunton, MA)
Lockheed Martin (Bethesda, MD)
Motorola (Scottsdale, AZ)
Stanford Telecommunications (Colorado Springs, CO)



MISSION: The Single Channel Ground and Airborne Radio System (SINCGARS) provides commanders with a highly reliable, secure, easily maintained Combat Net Radio (CNR) that has both voice and data handling capability in support of command and control operations. The radio, along with the ADDS, forms the communications backbone for Force XXI.

CHARACTERISTICS: SINCGARS configurations include manpack, vehicular (both low and high power), and airborne models. Communications Security (COMSEC) is integrated in currently produced versions of the ground and the airborne radios, and the System Improvement Program (SIP) models providing upgrades to enhance operational capability in the tactical internet environment.

FOREIGN COUNTERPART: Racal (UK), Thomson CSF(FR), Marconi (Belgium), Erichssen (Norway)

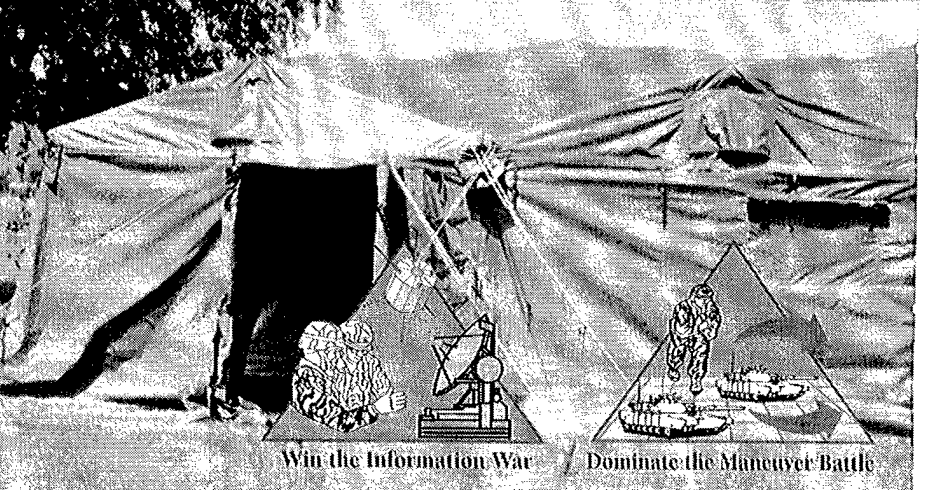
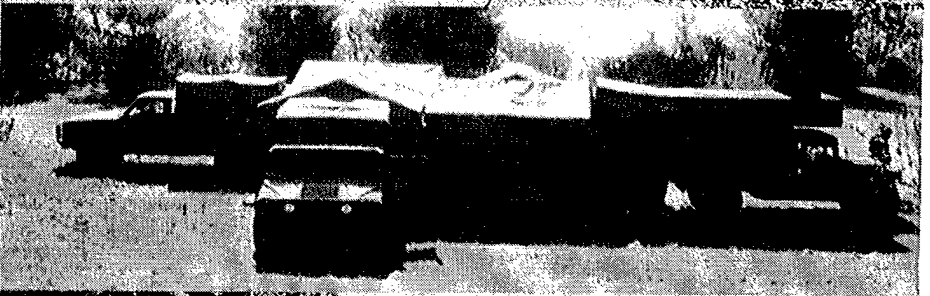
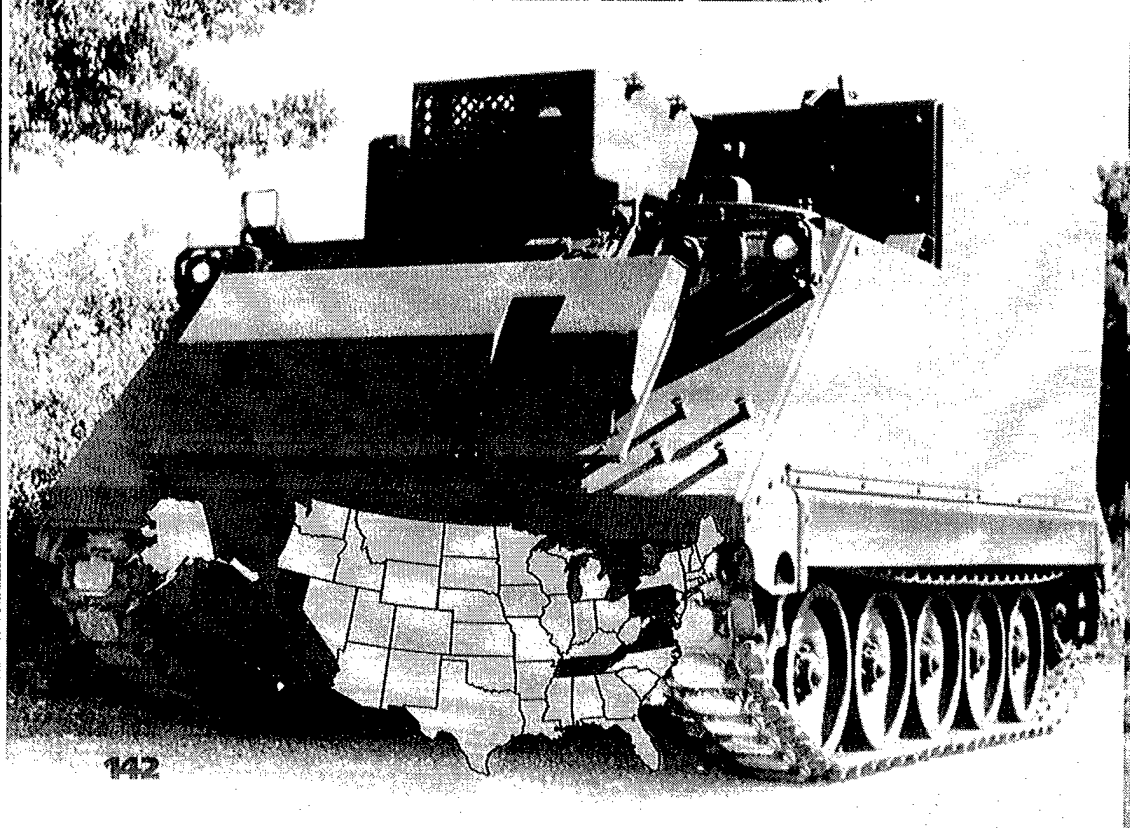
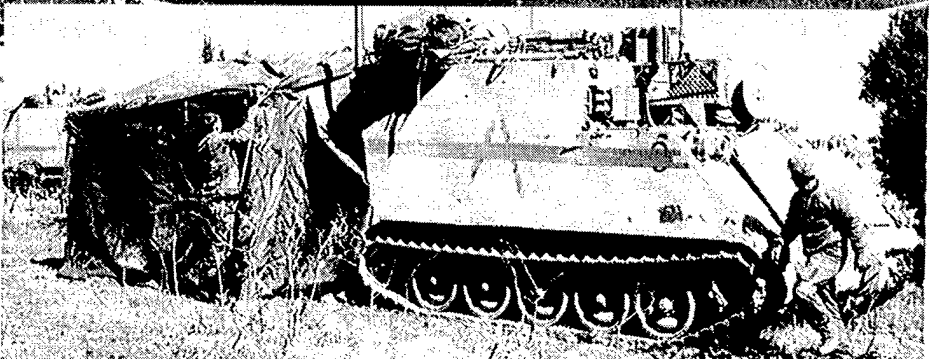
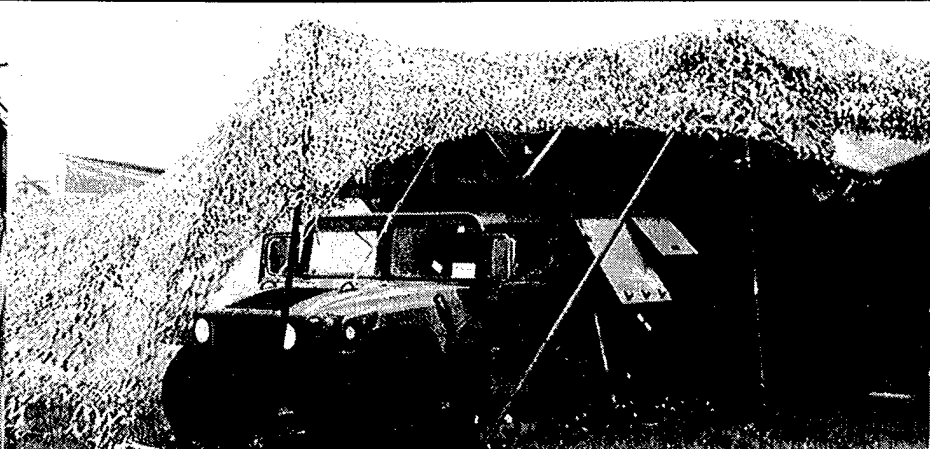
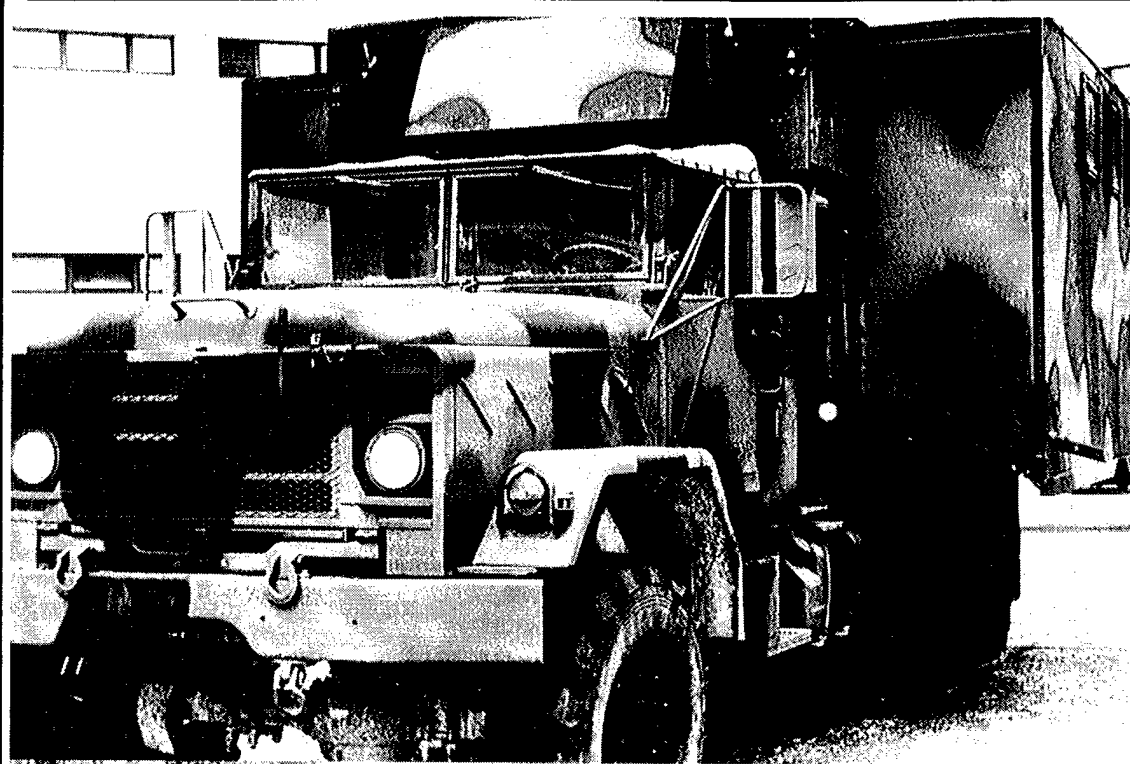
FOREIGN MILITARY SALES: Bahrain, Finland, Greece, Italy, Kuwait, Morocco, Saudi Arabia National Guard, SHAPE Tech Ctr (NATO), Spain, Special Def Acq Fund (pre-purchased export model assets for FMS Sales)

PROGRAM STATUS: First source, International Telephone and Telegraph (ITT), SINCGARS ground radios passed First Article Tests in January 1988, and production deliveries began immediately. A Follow-On Test and Evaluation (FOTE) was successfully completed in May 1988 on the non-integrated COMSEC (non-ICOM) version of the radio. Initial and Follow-on Operational Test and Evaluation (IOTE and FOTE) were successfully completed on the ICOM radio in November 1990. Award for Option 3 for 16,000 radios was made in June 1989. Option 4 for 16,000 radios was awarded in 1QFY91, completing the first-source contract of 44,100 ground radios. Subsequently, a new contract for first-source production was awarded for 16,000 radios in March 1992, with another 16,000 radio award in FY93. ITT is also the sole producer of the airborne SINCGARS, with contracts awarded for almost 6,361 units. A second-source of ground radios, General Dynamics Land Systems (GDLS), was selected in July 1988 and awarded a firm fixed price, base year contract for 400 radios. Second-source First Article Test was successfully completed in July 1992, and IOTE was successfully completed in February 1993. General Dynamics was awarded a Low-Rate Initial Production contract for an additional 7,500 ground radios. A second-source, full-scale production award for 12,000 radios was made in August 1993. Annual dual source limited competition began in FY94, with award in April 1994 of 17,053 units to ITT and 11,369 units to GDLS. FY95 limited competition awards were made in March 1995 for System Improvement Program (SIP) radios, 18,601 to ITT and 15,219 to GDLS. FY96 limited competition awards were made in March 1996 for an additional 23,716 SIP radios. These radios will provide improved data capability, improved forward error correction for low speed data modes, automated interface into the Automated Common User System and a Global Position System interface and Internet Controller which allows SINCGARS to interface with EPLRS and Battlefield Functional Area and other host computers. Annual dual source limited competition for the SIP system components will continue in FY97. The program office has fielded more than 85,000 radios to the training base and Army units worldwide. Dual source limited competition awards were made for SIP radios in March 1996.

PROJECTED ACTIVITIES: Dual source limited competitive award is scheduled for 2QFY97.

PRIME CONTRACTOR: General Dynamics (Tallahassee, FL)
International Telephone and Telegraph (Ft. Wayne, IN)

* See appendix for list of subcontractors.



PRODUCTION AND DEPLOYMENT

Standardized Integrated Command Post System (SICPS)

MISSION: The Standardized Integrated Command Post System (SICPS) is a family of standard command post (CP) facilities developed to house the Army Battle Command System across all Battlefield Functional Areas (BFA). Variants of SICPS consist of a Tent CP, a Rigid Wall Shelter CP, a Track Vehicle CP (M1068), a 5-Ton Expansible Van CP, and a Soft Top HMMWV CP.

CHARACTERISTICS: **Tent CP:** 11 ft x 11 ft supported by a three-piece aluminum frame, with interchangeable fabric sidewalls, any of which can be removed for attaching two or more tents together. Fielded with two tables, two mapboards, and a fluorescent light set. The Tent CP can be attached to any of the other SICPS variants, except the 5-Ton Expansible Van CP, by replacing one sidewall with an interface boot wall.

Rigid Wall Shelter CP: Mounts on the HMMWV shelter carrier (M1097) and is powered by an on-board 10 kW generator. Provides equipment racks, internal lighting and blackout, power and signal import/export panels, internal wiring/cabling, vehicular intercom system, 18000 BTU environmental control unit, chemical/biological protection, electromagnetic interference shielding, Quick Erect Antenna Mast (QEAM), and workspace for two each Command, Control, Communications, Computers and Intelligence (C4I) workstations and operators.

Track Vehicle CP: Modification of existing M577 track vehicle to M1068 CP vehicle by addition of on-board 5 kW generator, equipment racks, internal lighting, power and signal import/export panels, internal wiring/cabling, vehicular intercom system, QEAM, and workspace for two each C4I workstations and operators.

5-Ton Expansible Van CP: An installation kit, M-2780/G, for existing 5-Ton Expansible Van (M934A2) which provides equipment racks, internal lighting and blackout, power and signal import/export panels, internal wiring/cabling, QEAM, and workspace for four each moveable C4I workstations and operators.

Soft Top HMMWV CP: An installation kit, M-2727/G, for existing HMMWV that provides equipment racks, internal lighting and blackout, power and signal import/export modules, internal wiring/cabling, mount for QEAM, and workspace for two each C4I workstations and operators.

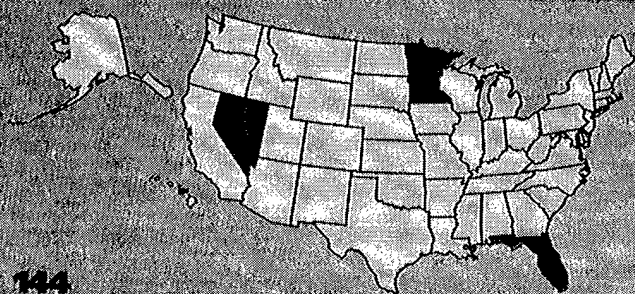
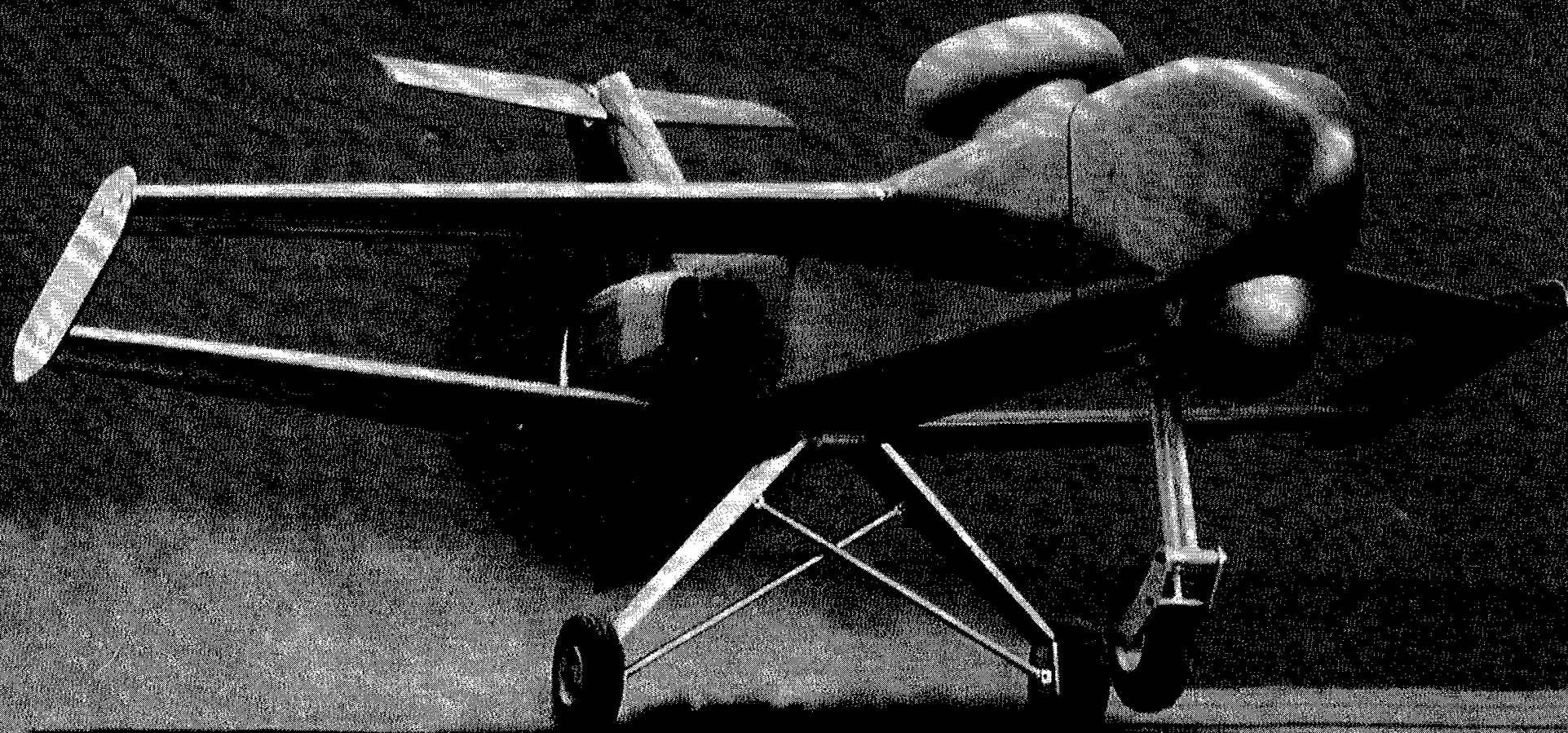
FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

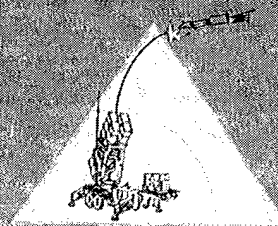
PROGRAM STATUS: **Tent CP:** Type Classified (TC) Standard, Feb 90; production contract, Aug 91. On-going fielding.
RWS CP: Version 1, TC limited Procurement Urgent, Aug 91. Production contract, Sep 91. On-going fielding. Version 4, Milestone III, Aug 96. Start production, Oct 96.
Track CP: Production contract awarded, Jun 92. TC Standard, Sep 95. On-going fielding.
5-Ton Expansible Van CP: Milestone III, Aug 96. Start production; TBD.
Soft Top HMMWV CP: Production contract, Jun 95; TC Standard, Oct 95. First delivery, Aug 96.

PROJECTED ACTIVITIES: Provide SICPS Tent, RWS, M1068, 5-Ton, and Soft Top platforms to support BFA requirements.

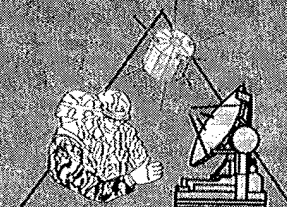
PRIME CONTRACTOR: **Tent CP:** Camel (Knoxville, TN)
Track CP: FMC (United Defense, LP) (San Jose, CA)
RWS CP: TBD
5-Ton and Soft Top CP: Tobyhanna Army Depot (Tobyhanna, PA)



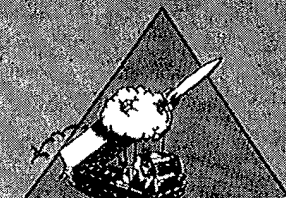
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Protect the Force



Win the Information War



Conduct Precision Strike

SCIENCE AND TECHNOLOGY

MISSION: The Outrider Tactical Unmanned Aerial Vehicle (TUAV) will provide Reconnaissance, Surveillance, and Target Acquisition (RSTA) to U.S. Army Divisions and Brigades and to U.S. Marine Corps expeditionary brigades, and Navy ships at a range up to 200 km, day or night, and in limited adverse weather conditions.

CHARACTERISTICS: The Outrider TUAV is intended for use in environments where real-time information feedback is needed, manned aircraft are unavailable, or excessive risk or other conditions render use of manned aircraft less than prudent. The Outrider TUAV system consists of one Ground Control Stations (GCSs); one Remote Video Terminals (RVTs); four Air Vehicles (AVs), Modular Mission Payloads (MMPs), and launch and recovery equipment. The Ground Control Station collects, processes, analyzes, and distributes digitized battlefield information by interfacing with present and planned Service Command, Control, Communications, and Intelligence (C3I) systems. Flight and mission commands are sent to the AV(s) from the GCS. RSTA imagery and AV position data are sent by downlink directly to the GCS or RVTs located in tactical operations centers. The Outrider TUAV is transportable by one C-130, with a roll-on, roll-off capability. Mission capability will be enhanced as advanced mission payloads become available, maximizing battlefield digitization to increase the effectiveness of other weapon systems.

Air Vehicle Characteristics:

Size and Weight

Wing Span - 11.1 ft

Overall Length - 9.9 ft

Wing Area - 28.2 ft

Dry Weight - 300 lbs

Available fuel and oil - 85 lbs

Performance

Dash Speed - 110 kts

Minimum Flying Speed - 35 kts

On Station Endurance - 7.2 hours @ 50 km

- 4.9 hours @ 200 km

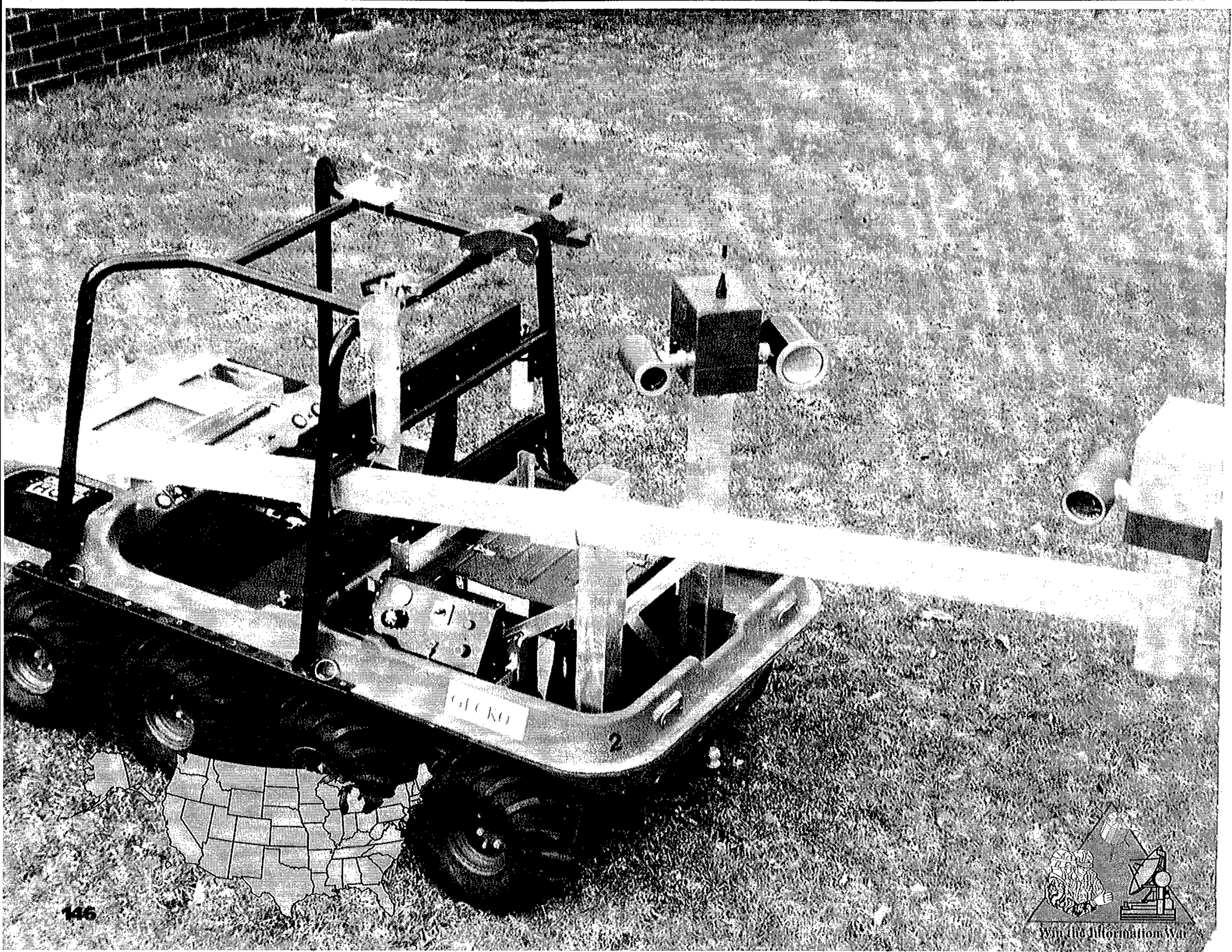
FOREIGN COUNTERPART: Israel has considerable experience with UAVs; however, requirements and specifications of the Tactical UAV make it unique.

FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: Contract for the TUAV Advanced Concept Technology Demonstration was awarded on 2 May 1996.

PROJECTED ACTIVITIES: The first system is expected to be delivered to the Army in May 1997.

PRIME CONTRACTOR(S): Alliant Techsystems (Hopkins,MN)



CONCEPT

MISSION: The Tactical Unmanned Vehicle (TUV) will use its unmanned Reconnaissance, Surveillance, and Target Acquisition (RSTA) capability as a force multiplier to expand the maneuver commanders' area of interest and influence.

CHARACTERISTICS: The TUV consists of a Mobile Base Unit (MBU) with a payload and an Operator Control Unit (OCU) which controls the remotely operated MBU. A data link between the MBU and the OCU will allow vehicle control and feedback and transmit RSTA information to the operator. The MBU will be able to operate at ranges 4-10 km from the operator and its RSTA capability will be able to detect vehicles 2 km from the MBU. The TUV is planned to be an organic Battalion level asset for Army and Marine Corps Infantry and Marine Corps Artillery units and will be compatible with the Common Operating Environment and Army and Marine Corps Command, Control, Communications, and Information systems.

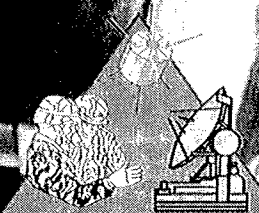
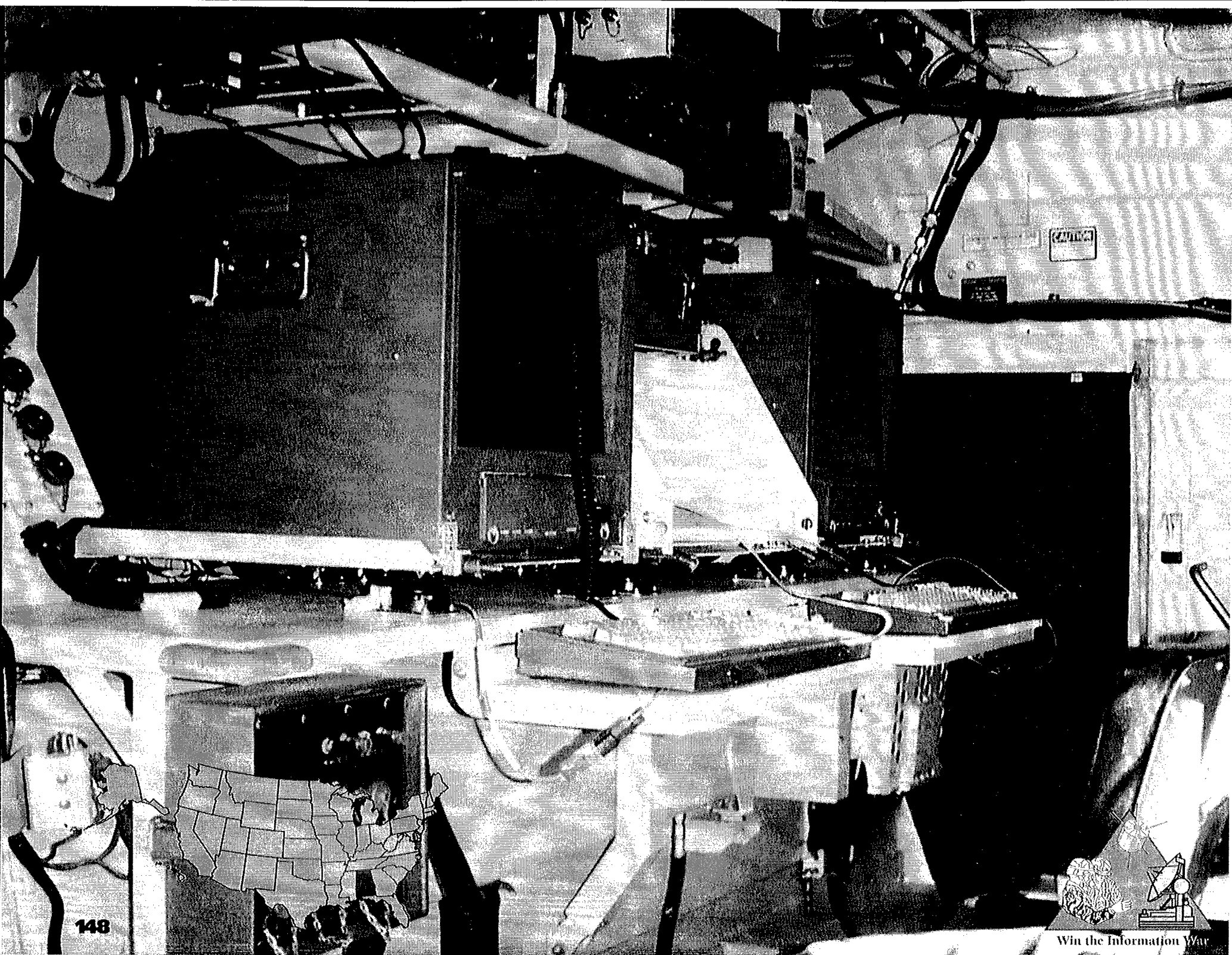
FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

PROGRAM STATUS: The TUV is currently in the Program Definition and Risk Reduction phase of development. This is an in-house government effort using existing prototype systems.

PROJECTED ACTIVITIES: User Appraisals with the 3rd Brigade, 3rd Infantry Division will begin in FY97. Milestone II is scheduled for 4QFY98.

PRIME CONTRACTOR: TBD.



PRODUCTION AND DEPLOYMENT

MISSION: The Task Force (TF) XXI Tactical Operations Centers (TOCs) provide effective, interoperable and digitized C3I facilities to the Experimental Force (EXFOR) for TF XXI Army Warfighting Experiment (AWE) in March 1997. The focus is on providing warfighters with automated TOCs that are flexible, modular, robust, reconfigurable and interoperable.

CHARACTERISTICS: The TOCs consist of Army Battle Command Systems (ABCS); FAAD C²I, ASAS, CSSCS, MCS, and AFATDS. The TOCs incorporate standard army communications, e.g., SINCGARS, and commercial products to form the Tactical Internet. The TOCs also have Appliqué that provide an interface between individual vehicles and the ABCS systems. The TOCs were designed using an Integrated Product Team consisting of PEO C3S, various TRADOC agencies and the 4th Infantry Division. Through an iterative process the designs were refined and approved by a General Officer Steering Committee headed by the Deputy Commander, TRADOC. For TF XXI Brigade, the following TOCs were built and delivered in May - Jun 96:

- 4 ID Tactical CP 1
- 1st BDE TOC
- 1st BDE Tactical Alternate Command Post (TAC)
- 1st Brigade Support Area (BSA) TOC
- 1st BN 22nd Inf TOC
- 3rd BN 66th Armor TOC
- 1st BN 5th Inf TOC
- 4th BN 42nd FA TOC
- Aviation Task Force TOC
- 299th Engineer BN TOC
- Military Intelligence CO Analysis and Control Team (MI CO ACT)

FOREIGN COUNTERPART: No known foreign counterpart.

FOREIGN MILITARY SALES: No foreign military sales.

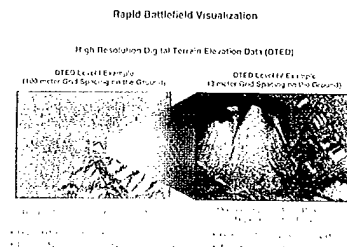
PROGRAM STATUS: As of August 1996, all TOCs were delivered to 4th Infantry Division, Fort Hood, Texas. The units have received individual training and conducted collective training in preparation for TF XXI Brigade exercise at the National Test Center in March 1997.

PROJECTED ACTIVITIES: Task Force XXI Brigade exercise - March 1997.
Task Force XXI Division exercise - Nov 1997.

PRIME CONTRACTOR: TRW Inc. (Huntsville, AL)

including Maneuver Control System and Force XXI Battle Command Brigade and Below, as well as provide system and operational architectures that will reduce reaction and decision times. Support: Battlefield Digitization

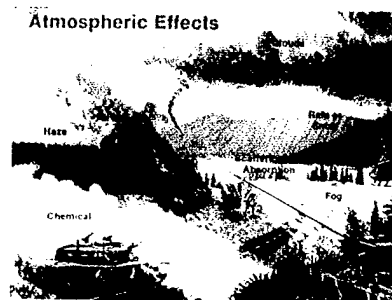
Rapid Battlefield Visualization Advanced Concept Technology Demonstration (ACTD):



The Rapid Battlefield Visualization ACTD (RBV ACTD) will address the current inability of the Army to provide high resolution terrain databases and to integrate and demonstrate capabilities to generate, disseminate, and exploit high resolution digital terrain databases rapidly. The program will provide comprehensive visualization of the battlefield to support crisis response and force projection operations over unmapped areas. A test bed will be established with the XVIII Airborne Corps at Fort Bragg, North Carolina and will be incrementally upgraded and improved by integrating key enabling technologies in a series of Army Warfighter Exercises. An objective capability will be delivered as a leave behind in the year 2000. The ACTD will address three principle types of terrain data: digital terrain elevation data (DTED); (2) digital feature data; and (3) orthorectified imagery. The objective timelines identified by the user to collect all three terrain data types are: a 20 x 20 km area in 18 hours; 90 x 90 Km area in 72 hours; and a 300 x 300 Km area in 12 days. The approach to the ACTD is to investigate six elements which will be integrated, evaluated and demonstrated: (1) rapid access to archived data; (2) rapid collection of high resolution terrain elevation data and multi-spectral imagery using a tactically viable platform; (3) semi-automated extraction of terrain features; (4) rapid dissemination of databases over global broadcast; (5) a hierarchical spatial database management system that will accommodate multiple scales, resolutions, and dynamic updates; and (6) visualization workstations that will allow mission planning, rehearsal, course of action analysis, and embedded wargaming. The RBV ACTD is leveraging key enabling technologies from government and industry for the

above six elements.

Owning the Weather (OTW): The atmosphere affects nearly all Army systems, including the newer and more technologically advanced imagers, seekers, and munitions. Haze and fog can severely degrade target recognition and acquisition devices, and dense fog can render them useless. Precipitation is a concern for trafficability, but it also degrades optical and infrared devices and may incapacitate many radar systems. Chemical agents and obscurants disperse according to wind direction and speed, turbulence and temperature. Wind is a major factor affecting artillery accuracy, and as the range of artillery weapons increase, so do the atmospheric effects. Commanders must plan for the impact on weapon systems and optical/infrared devices in periods of adverse weather or limited visibility.



OTW is the use of advance knowledge of the environment, and its effects on friendly and enemy soldiers, equipment and weapon systems, operations, and tactics, to gain decisive advantage over opponents. It involves a four step process for knowing, predicting, and applying the weather: a) battlespace sensing and data collection; b) processing, forecasting, analysis and dissemination; c) battlefield visualization and decision aids; and d) combat weather exploitation and information operations. OTW will provide Force XXI an effective all-weather mission capability by giving the warfighter the information he needs to fight and operate smart weapons and munitions under all weather conditions. A near-all-weather operational capability can be achieved through the selection of the appropriate mix of battle sensors, weapon systems, and tactics that give friendly forces the ability to see, maneuver, fight and win in all types of weather.

OTW provides the capability to anticipate the differential impacts of weather on friendly and threat capabilities allowing commanders to exploit windows of opportunity influenced by the weather. OTW technology and information systems (e.g., Integrated Meteorological System, IMETS) can serve as a combat multiplier by providing commanders and their staffs with known and forecasted conditions and effects in the air and on the ground. These enable them to plan for conditions before a battle, helping the commander to choose the time, manner, and place of engagement. For example, in adverse weather the effectiveness of long-range precision-strike weapons with electro-optical sensors and laser-guided systems becomes severely limited. In such cases, employment of conventional systems and munitions would be more effective.